NATUR CYMRU

A Review of WILDLIFE in Wales

Rhif/Number 11 • Haf/Summer 2004

- National Park threat – Bluestone
- Llên y llysiau – uchelwydd
- Wildlife-friendly gardening at Plas Tan y Bwlch
- Greater horseshoe bats in Pembrokeshire
- Restoring the fens at Cors Geirch
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- The black poplar in Wales
- Cofnodi gwyfynod ar y cyd
- Nature's gunpowder plot
- Dragons and damsels...princes of the air
- Hysbysfwrdd/NoticeBoard

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A Review of WILDLIFE in Wales

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Articles are published in the language in which they are submitted. They are followed by summaries in the other language, and some regular columns appear in both languages. If you would like to receive a translation of any article, please contact the Editor.

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Bwriedir i *Natur Cymru* hyrwyddo a chyfnewid gwybodaeth am fioamrywiaeth a hyrwyddo dadl. Nid yw'n farn a fynegir yn y cylchgrawn hwn o anghenraid yn farn y noddwyr. Os oes gennych wybodaeth, erthyglau neu waith celf y credwch a allai fod o ddiddordeb i'r darllenwyr, cysylltwch â'r Golygydd os gwelwch yn dda.

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Natur Cymru is intended to promote the exchange of information about biodiversity and encourage debate. The views expressed in this magazine are not necessarily those of the sponsors. If you have information, ideas for articles or artwork which you think might be of interest to readers, please contact the Editor.

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Llun y clawr/Cover image: Cotton-grass at Fenn's, Whixall and Bettisfield Mosses. Photo: J. Hawkins

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Golygyddol

Mae mynd am dro bob amser yn llwyddo i roi nerth newydd imi. Mae cerdded eich hoff lac twyni, a thegeirian llydanddail y gors yn llachar o'ch cwmpas, yn cynnig cyfuniad o'r cyfarwydd a'r annisgwyl. Rwy'n dychwelyd adref dan gofio mor lwcus ydw i, a bod rhaid imi wneud mwy i fynegi rhyfeddodau'r tirlun yma i bobl eraill.

Ychydig iawn o'r bobl yr ydw i'n gweithio gyda nhw sydd heb eu darbwyllo. Un ai fel unigolion sydd â gofal dros y tirlun ynteu fel gweithwyr proffesiynol, rydym yn cymryd yn ganiataol bod pob rhan o'r tirlun yn bwysig i rywun – pob hen fwthyn maen a phob coeden. Mae haenau hanes dynol a byd natur, hynt a helynt pobl a natur law yn llaw dros amser, yn cydblethu i roi ystyr i'n tirlun.

Ffoto: J. Robinson.

Giach/Snipe.

Dydy'r ystyr yma ddim yn amlwg bob amser i'r bobl sy'n penderfynu a fydd yr haenau hyn yn parhau ynteu'n cael eu dileu am byth. Mae doethineb yr oes a hunan-fuddiannau, arwyddion yr economi ac ystyriaethau ymarferol, yn aml yn pwyntio i'r cyfeiriad anghywir. Oherwydd yr amrywiaeth peiriannau sydd ar gael yn gyffredin bellach, mae modd gwneud bron unrhyw beth i'r tirlun, ac mae hyn yn ychwanegu at y grym sydd yn nwylo rheolwyr y tir.

Yn y byd rhithwir, mae'n fêl i gyd ar fyd natur. Mae mwy o bobl nag erioed wrthi yn ysgrifennu cynlluniau gweithredu ac yn llunio polisïau, nid yn unig i achub bioamrywiaeth, ond i ychwanegu ato. Yr her yw cau'r bwlch rhwng y dyheadau sy'n cael eu hadlewyrchu yn y cynlluniau a'r polisïau a'r hyn sy'n cael ei weld yn digwydd mewn gwirionedd allan yn yr awyr agored.

Mae'r rhifyn yma'n llawn enghreifftiau o sut mae'r bwlch yma'n cau. Mae gerddi Plas Tan-y-bwlch wedi'u gweddnewid yn fan bwydo i'r bywyd gwyllt lleol, diolch i ddegawd o ddulliau garddio cydnaws. Drwy ddefnyddio dulliau arloesol, mae rwbel moel a digroeso hen waith powdwr gwn wedi troi'n waun bori sy'n gartref i doreth o fywyd gwyllt. Drwy adnabod cyflwr y goeden gynhenid brinnaf sydd gennym at wneud coed, yr aethnen ddu, mae gwaith amlhau yn cael ei wneud i ddiogelu ei dyfodol. Dylai diddordeb byw mewn gwesynod a mursennod arwain at adfywio'r cynefinoedd dŵr agored y mae arnyn nhw eu hangen.

Mae rheolwyr tir sydd wedi'i hysgogi gan warchodaeth yn rhoi peiriannau, a whilberi, ar waith i ddod ag amrywiaeth yn ôl i'r tirlun. O dynnu'r haenen uchaf sy'n llawn maetholion, mae bywyd gwyllt y dŵr a'r gors yn heidio yn ôl i borfeydd wedi'u gwella o fewn safle sy'n werthfawr iawn o safbwynt natur. Mae ysblander un o'r tair prif gyforgors sydd ar ôl yng Nghymru yn cael ei adfer, er mor fawr yw'r her. Yn hytrach na'i newid, mae'r gweithfeydd newydd hyn yn caniatáu i wir natur y tirlun ddod i'r amlwg, gan ychwanegu at ei batrymau a'i ystyron.

Mae'r tirlun fel rhyw dapestri Bayeux byw sydd bob amser yn newid: mae'n hardd, mae'n werthfawr, ac mae'n adrodd stori. Dros y tair blynedd ddiwethaf, rydym wedi cyhoeddi nifer fawr o erthyglau sy'n disgrifio sut mae unigolion a sefydliadau wedi ychwanegu at gyfoeth y tapestri. Rwy'n edrych ymlaen at gyhoeddi rhagor.

James Robertson

Editorial

I find that trips out invariably have a re-charging effect on me. A walk across a favourite dune slack, bright with marsh orchids, combines the familiar with the unexpected. I return home thinking how lucky I am, and how I must do more to convey the wonders of this landscape.

Few people I deal with need convincing. Whether as concerned individuals or professionals, we take it as read that every part of the landscape, every old stone cottage and every tree, matters to someone. The interweaving of layers of human and natural history, the bumps and burrs of people and nature hand in hand over time, give meaning to our landscape.

This meaning is not always apparent or important to the people who decide whether those bumps and burrs remain or are erased forever. Received wisdom and self-interest, economic signals and practical considerations often point the wrong way. Almost anything can be done to the landscape, such is the array of machinery now generally available, and this adds to the power in the hands of land managers.

In the virtual world, nature has never had it so good. Never have so many people been engaged in writing action plans and framing policies, not just to save biodiversity, but to enhance it. The challenge is to close the gap between the aspirations reflected in these plans and policies, and what we see actually happening out there under the open sky.

This issue is full of examples of how that gap is closing. The gardens at Plas Tan y Bwlch are transformed into a feeding station for the local wildlife, thanks to a decade of wildlife-friendly gardening. Using some innovative techniques, inhospitable bare rubble at a former gunpowder works becomes a wildlife-rich, grazed heathland. Knowledge of the state of our rarest native timber tree, the black poplar, leads to propagation to secure its future; a delight in dragonflies and damselflies should stir a renaissance in the open water habitats they need.

Motivated conservation land managers are setting machines, and wheelbarrows, to work to put diversity back into the landscape. Water and fenland wildlife pour back into some dull, improved pastures within a site of high nature value, when the nutrient-rich top layer is removed. The splendour of one of the three main raised bogs left in Wales is restored, though the undertaking is huge. Far from changing it, these new embroideries allow the true nature of the landscape to come through, and add to its patterns and meanings.

The landscape is like a living, constantly changing Bayeaux tapestry: beautiful, precious, with a story to tell. Over the last three years we have published many articles describing how individuals and organisations have enriched this tapestry. I look forward to publishing many more.

James Robertson

Photo: NLW

Old peat cuttings at Fenn's Whixall Mosses.

National Park threat – *Bluestone development*

Will the National Park's tranquility be disturbed? Photo: Jeremy Moore.

A massive tourist development in the Pembrokeshire National Park has been given the go-ahead. Reluctantly the Council for National Parks has decided to challenge the decision in court, as ***Sylvia Davies*** *reports.*

Photo: PCNPA.

The part of the development (outlined) that falls within the National Park.

"National Park faces court over holiday village plan…" So ran the headlines in a broadsheet last April. Other broadsheets shouted: "Charity to fight village on National Park land" and "Bitter wrangle over holiday village plan". It is rare that the Welsh environment makes a storm in the London broadsheets, so what is it that's got them running to examine our beautiful land?

What is the holiday village plan?

The Bluestone development is a £60 million tourist complex proposed close to Narberth in Pembrokeshire. There are two parts to the development: on the one hand, theme park attractions, notably Waterworld and a Snowdome, and on the other hand – and this is what makes the development hugely controversial – residential, retail and leisure developments within the Pembrokeshire Coast National Park.

Spilling over into open, undeveloped countryside within the Park will be a brand new village including a sports club, health spa and shops, plus 340 timber lodges (imported from Estonia), and a sewage treatment works for the whole site. All this amounts to the creation of the third largest settlement in the National Park after Tenby and Saundersfoot.

Is it an issue only for Pembrokeshire?

The building of the Bluestone complex would amount to a national precedent. It would be the first major holiday village of its kind in a British National Park, and granting it planning permission could be seen as a green light for other potential major developments in National Parks across Britain.

Organisations such as the National Trust Wales, the Campaign for the Protection of Rural Wales, the Council for National Parks (CNP) and the Friends of Pembrokeshire National Park therefore expected the Assembly's Planning Minister Carwyn Jones to call in the application, so that the decision on whether the development should be given planning permission would be made at the Wales-level, rather than by local authorities. Some members of the Pembrokeshire Coast National Park Authority (PCNPA) also thought that the application should and would be called in. The Minister, however, did not. He considered that the arguments on whether to call it in were "finely balanced", but in the event he decided to leave the decision on whether to give planning permission to the Bluestone complex in the hands of the PCNPA.

Photo: CCW.

The unspoilt Pembrokeshire Coast is enjoyed by many.

In the meantime, the Assembly's Economic Development Minister Andrew Davies nailed his colours to the Bluestone mast by spearheading a £16.5 million grant to the development even before planning permission had been considered. Not surprisingly then, it has become a subject of national controversy – discussed and debated in the National Assembly for Wales, the House of Commons, the broadsheet media and on national radio and television.

What about the jobs that are promised?

Bluestone promises 600 jobs. That is hugely significant for Pembrokeshire, a county which has lost hundreds of jobs over the last few years. However, the National Park is just one small, albeit special, part of the county of Pembrokeshire. Big infrastructure projects are more suitable for the rest of Pembrokeshire than the National Park itself. Jobs that are created or supported by playing to the strengths of our National Parks do exist, such as the Pembrokeshire Coast National Trail or Cilrhedyn Woodland Centre. What we need inside the National Park are more high quality jobs that enhance its special environment rather than a big, brand new settlement on a greenfield site.

It's only on the edge of the National Park, so does it matter?

Bluestone supporters say that, because the accommodation and retail facilities are only just inside the National Park, then the boundary of the National Park should simply be redrawn, or that the 'edge' of the National Park is less important than its 'heart'. But the Pembrokeshire Coast National Park is in fact more 'edge' than 'heart'! It is largely a long, thin ribbon of beautiful and precious Pembrokeshire coastline, and allowing major development on the 'edge' could mean the start of the end for this, and other, National Parks.

The law requires all of the National Park to be treated with equal respect: it does not provide for an A-class zone at the 'heart' of the National Park and a lower B-class zone at the boundary. Our National Parks are the A-zone for high environmental quality, recognised by the Government as the jewels in the countryside's crown. The A-zone for major infrastructure, by contrast, lies outside the National Parks, in the majority of the country.

In addition, Bluestone brings a major development to a National Park which has its fair share of major developments on its doorstep, such as Oakwood and the Milford Haven oil refineries. The Pembrokeshire Coast is Britain's smallest National Park. Encroaching on the National Park's rare and precious landscape with a major development would devalue the National Park and cannot be justified.

It didn't get planning permission, then?

Quite astonishingly, the PCNPA has given Bluestone outline planning permission. County Councillors, who form the majority of members on the National Park Authority, voted in favour of the development, despite the Authority's professional planning officers' strong recommendation that planning

permission be refused because the proposal is against national and local planning policies.

Local businesses as well as individuals from Pembrokeshire and across Wales and further afield are gravely concerned about the development and have urged the Council for National Parks – a watchdog charity that consists of 47 organisations that care passionately about securing a vibrant future our beautiful National Parks – to press on and to get the planning permission quashed.

The Bluestone development would encroach on the National Park (shaded) between Haverfordwest and Narberth.

What now?

The developer is now working with the National Park Authority and the County Council on the issuing of the outline permission and consideration of detailed matters. It also needs to obtain legal consents from other statutory bodies, such as the Environment Agency, before it can proceed.

In the meantime, the CNP has found itself between a rock and a hard place. There might well be a place for Bluestone, but in the view of the CNP, this is not inside a National Park. It considers that giving planning permission to Bluestone is a bad decision for the whole of the National Park family because of the precedent it could set. It is very disappointed by the Authority's decision and believes that the National Park Authority, which is a body set up by government to protect the special qualities of the National Park, has failed to uphold its duty in this case, and that its decision on Bluestone damages the integrity of the National Park. But the only way to get the planning permission quashed is through the High Court.

CNP is usually very supportive of the work of National Park Authorities, and mounting a legal challenge against a friend is a difficult decision to take. However, local people, local businesses, national organisations such as the Campaign for the Protection of Rural Wales and Friends of the Earth Cymru, as well as friends of National Parks from further afield, have been looking to CNP as the last hope in stopping this major development in the National Park.

After long consideration, the trustees of the CNP were unanimous in feeling that they would not be true to the charity's purposes if they did not fight the PCNPA's decision to give planning permission to Bluestone. And so, with heavy heart, but buoyed by a very supportive postbag, CNP bit the bullet and lodged legal proceedings against the National Park Authority in the High Court on 23 April 2004.

The High Court have now given CNP leave to proceed to an initial hearing of the case, likely to be this autumn, and we await the outcome with bated breath.

Sylvia Davies works for the Council for National Parks as Senior Policy Officer, leading on Welsh affairs for CNP, and is based in CNP's Cardiff Office.

Brwydr y Garreg Las

Gyda chalon drom y penderfynodd Cyngor y Parciau Cenedlaethol ddechrau achos cyfreithiol yn erbyn Awdurdod Parc Cenedlaethol Arfordir Sir Benfro – oherwydd y penderfyniad i roi hawl cynllunio amlinellol i gynllun gwyliau'r Garreg Las. Gyda, siopau, clwb a 340 o dai pren, hwn fyddai'r trydydd lle mwya' yn y Parc, a' r pentre' gwyliau cynta' o'i fath i'w godi mewn Parc Cenedlaethol. Gallai fod yn ddechrau'r diwedd i'r holl Barciau. Mae llefydd mwy addas y tu allan i'r Parc ar gyfer datblygiadau sy'n creu 600 o swyddi a, gan mai dyma'r Parc Cenedlaethol lleia' o'r cyfan, does dim cyfiawnhad tros amharu arno. Rhoddwyd caniatâd er fod swyddogion cynllunio'r Awdurdod yn gry' yn ei erbyn. Gwrthododd Llywodraeth y Cynulliad alw'r cynllun i mewn ac mae mudiadau, trigolion a busnesau lleol yn edrych at Gyngor y Parciau i wneud safiad ola' yn ei erbyn.

Llên y llysiau: *uchelwydd*

Rhywbeth dieithr iawn yw gweld dail gwyrdd uchelwydd yn blaguro ar ganghennau llwm yn ystod y gaeaf. Does ryfedd fod cymaint o bwerau dirgel wedi cael eu cysylltu â'r planhigyn hwn, fel yr esbonia ***Iwan Edgar****.*

A hoffech wybod mwy am brosiect Llên y Llysiau?
A hoffech wybod mwy am ddefnydd rhedyn a phlanhigion eraill?
A hoffech gyfrannu o'ch gwybodaeth eich hun i'r gronfa o ddata?

Cysylltwch felly â safle we'r Gymdeithas www.cymdeithasedwardllwyd.org cliciwch ar y botwm *Llên y Llysiau* … ac fe welwch safle newydd arbrofol y prosiect gyda chyfle i ychwanegu eich sylwadau ac i gyrchu'r wybodaeth a gasglwyd hyd yma. Rhowch gynnig arni, mae'n hawdd! Neu, os yw'n well gennych, rhowch nodyn ar bapur a'i anfon at **Haf Meredydd, 14 Stryd Wesla, Porthmadog, Gwynedd**.

Llên y Llysiau (the Lore of Plants) is a project initiated by *Cymdeithas Edward Llwyd* to collect information on the cultural connections of plants in Wales and to celebrate them. Data is available on the *Cymdeithas Edward Llwyd* interactive website. The *Llên y Llysiau* project group welcomes any contributions regarding the cultural connections of plants, either directly to the website or by mail to **Haf Meredydd, 14 Stryd Wesla, Porthmadog, Gwynedd.**

Ffotos: Jonathan Briggs

Disgrifiad

Planhigyn lled-barasitig sydd i'w gael ar frigau coed eraill. Plethiad blêr o gangau gwyrddion a ffrwyth gwyn gludiog ganddo yn y gaeaf. Y mae'n tueddu i dyfu ar goed perllannau. Y mae'n gyffredin mewn rhai rhannau o Ewrop ond nid yw i'w weld o gwbl mewn mannau eraill, e.e. y rhan fwyaf o Gymru.

Enwau

Lladin: *Viscum album*
Cymraeg : *uchelwydd, uchelfa, uchelfar, uchelawg, pren-awyr, uchelawr, holliach, heonllys, uchefel, gwysglys, gwysgonllys*
Saesneg: *mistletoe*
Llydaweg: *huel-varr*

Tarddiad enwau

Viscum album: Y gludiog gwyn – oherwydd ei ffrwyth gwyn gludiog.
Uchel + Y mae nifer o enwau Cymraeg yn cychwyn gyda'r elfen hon, ac yn amlwg yn rhai y gellir eu hanner egluro'n hawdd, drwy fod y llysieuyn yn tyfu ar goed bob tro.
Uchel + *awg* (*og*) terfyniad ansoddeiriol; + *gwydd* 'coeden'; + *bar/fa* (amr. o *fel* ?) 'brig', 'copa'. Sylwer fod yr enw Llydaweg a nodir yn union yr un peth. Yr enw cynharaf i'w nodi o'r ffurfiau hyn yw uchelfel (*Peniarth* 204 – tua 1500).

Sylwadau Edward Llwyd (*Archeologica Britannica*, 1707)

In the Cornish and Armoric, *Bar* signifies the top or summit of any thing; and in the Basques or Cantabrican *Burca* is a head. *Bar* signified formerly in Welsh a bush, whether of haire or of sprigs or of branches, whence Monmouthshire and Herefordshire the Misseltoe bush is yet called *yxel-var*

Mae holliach yn enw diweddarach (?) wedi ei lunio mae'n debyg i gyd-fynd â'r syniad ffug dderwyddol am rym iachusol y planhigyn: (gweler sylwadau Hugh Davies isod) Tybed ai enwau diweddarach yw'r enwau Cymraeg eraill a nodir?

Mistletoe: Yr enw Saesneg yn dweud fod y planhigyn yn cael ei ledaenu gan faw adar: *mistel* – 'baw' + *tan* (*toe*) – 'brigyn'. Yr mae hon yn ffaith hysbys ers y cyfnod clasurol – Aristotoles (*A Dictionary of English Plant Names* – G. Grigson)

Llên gwerin a rhin chwedlonol

Priodolid rhin arbennig i'r planhigyn hwn o'r cyfnod clasurol. Yng ngwaith Plinius (23-79) y ceir y cyfeiriad pwysicaf at hyn. Sonia fel y torrwyd darnau o'r planhigyn â chryman aur (oddi ar dderwen) gan dderwyddon adeg lleuad newydd ar gyfer defod o aberthu teirw gwynion i'w duwiau. O'r gwaith hwnnw y deilliodd cymaint o'r traddodiadau 'dysgedig' a gwerinol wedi hynny. Cysyllta ef y planhigyn hwn â'r derwyddon, a honna y byddai'r rheiny yn rhoi gwerth mawr ar y planhigyn hwn pe tyfai ar dderwen (gan nad yw bron byth yn tyfu ar y goeden honno), ac y byddai grym iacháu mawr i'r planhigyn.

Gwnaed yn fawr o hyn gan glerigwr o Sais, William Sturkeley (1687-1765), a fu'n fwy cyfrifol na neb am ymestyn y rhamant hwn, ac a dyfai uchelwydd yn ei ardd yn swydd Lincoln ar hen afallen yng nghanol cylch o goed 'derwyddol'.

Credid y byddai grym affrodisaidd i'r planhigyn, sydd wedi esgor ar yr arfer sy'n parhau o gwmpas y Nadolig o gusanu o dan frigyn y planhigyn. Y mae'r traddodiadau mwyaf o gylch y planhigyn hwn yn deillio o ardaloedd lle mae'n tyfu (gweler dosbarthiad isod). Yng Nghymru dim ond ar gyrion dwyreiniol y wlad y'i ceir. Noda Roy Vickery (*A Dictionary of Plant Lore*) gofnod o 1856 yng Nghonwy lle yr oeddid wedi stwffio darn o uchelwydd i fyny simnai i gadw ysbrydion drwg draw.

O ran chwilfrydedd wrth ysgrifennu'r erthygl hon, euthum i chwilota beth ddeuai i'r golwg ar y rhyngrwyd am dderwyddon a'r uchelfar. Mae yna doreth o ddeunydd, er ei fod yn ei hanfod yn ail-bobi llawer o'r un peth. Ceir cyfeiriadau niferus at aberthu teirw gwyn a'r cryman aur a'r traddodiad rhamantus hwn, a'r cusanu Nadolig. Ar safle gwe yr Amgueddfa Brydeinig, deuthum ar draws nodyn a oedd yn dweud fod y gŵr y canfuwyd ei weddillion ym mawn Lindow Moss yn Sir Gaerhirfryn wedi yfed trwyth yn cynnwys y llysieuyn hwn, cyn iddo gael ei ladd mewn ffordd erchyll. Amcenir iddo gael ei aberthu a'i daflu i lyn, tua'r ganrif gyntaf, meddir. Ceir hefyd nodyn ar safle'r BBC dan bennawd *Plant lifestyle* yn rhestru arferion a chredoau am y planhigyn yn cynnwys unwaith eto lawer am yr arfer, a manylion, am y cusanu dan sbrigyn, a rhai cyfeiriadau hefyd at chwedlau Llychlynnaidd. Yn amlwg yr oedd hynodrwydd y planhigyn yn cael ei arddel gan sawl hil.

Meddyginiaeth

"E a oyscar, e a veddalha, ac a sucun atto ac o chymyscir a resin a ei ogymmeint o gwyr e a aeddfeda gnyckiae a chwarennae./ Mawr yw ei nerth. y garthy gwlybyroedd ac yw goyscary ai trefny yw lle anianol./ O chymmyscir a charrec calch wedy ei lloscy a rhoi gwaddot gwin attei angwanegy ei rhinwedd yn vwy a wna./"
Llysieulyfr Salesbury 73b-74a

Yn cael ei ddefnyddio ar gyfer llewyg
Englishman's Flora, tud. 218

Dyma sylwadau Hugh Davies yn eu crynswth (*Welsh Botanology*, tud. 242):
"Gwiwbarch a dalai y Derwyddon gynt i'r llysieuwyddyn hwn, nid yn unig o ran y lliosog, a'r nefolaidd rinweddau meddyginiaethawl, a dybiasant iddo feddiannu, gan ei enwi yn HOLLIACH, ac iddo iachau pob clefyd, ar ddyn ac ar anifail; eithr hefyd mewn dull crefyddawl, gan iddynt dybio ei ddisgyn o'r nef, a chan nad ydyw ond megis cangen yn unig, ac nad oes iddo gyff i'w gynnal, na gwraidd daearol, meddyliwyd fod mawr debygoliaeth rhyngddo a'r 'blaguryn', sef y 'Blaguryn cyfiawn', a ragddywedasid

yn ei gylch gan y prophwydi, yr hwn oedd 'ddymuniad yr holl bobloedd'. Eithr y mae meddygon yr oes hon yn credu mai ar ofergoelion yr oedd ei holl rinweddau meddygawl yn sefyll."

Mae Richard Mabey (*Flora Britannica*, tud 244) yn llai sinigaidd ei ogwydd ac yn honni fod tystiolaeth feddygol ddiweddar (nad yw'n ei ffynonellu) yn dangos y gall fod gan y llysieuyn rym i ymlonyddu ac i ymladd yn erbyn tyfiannau.

William Salesbury/Dosbarthiad

Mae sylwadau William Salesbury ar y planhigyn hwn yn rhai gwerth eu nodi. Mae'n mynd ati'n gywir (yn wahanol i'r ddysg safonol) i grybwyll fod blodau ar y planhigyn hwn:

"yd y dywaid Phwcsiws [Leonard Fuchs] ni ddwc dim or blodae etto mi welwn arno cibae gwynion gweigion val meint pŷs y rhein yr oeddwn yn tybieid mae ei vlodae oeddynt./" (72b-73a – *Llysieulyfr Salesbury*, llawysgrif Ll.G.C. 4851)

Ond efallai mai un o'r materion mwyaf diddorol gan Salesbury yw ei sylw am ddosbarthiad daearyddol y planhigyn hwn. Gwnaed arolwg gan Plantlife yn 1999 *(Kissing Goodbye to Mistletoe?)* o ddosbarthiad y planhigyn ym Mhrydain. Dangosodd ei fod yn gyffredin iawn o gwmpas ardal Henffordd, gan ymestyn i Gymru, yn enwedig i Went. Ymddengys bod yr hyn a geir gan William Salesbury yn yr unfed ganrif ar bymtheg yn awgrymu mai tebyg oedd y dosbarthiad y pryd hynny:
"Byth ni thyf yr vchelfa ar y ddayar anid ymbric yspaddat, efyll neu ellyc prenn ac hyd y dywaid Phwcsius yn enwedic ar y Dderwen yr hyn ni welais i etto, nac yn tyfy ar yr vn pren y tu yma i Lan Gollen./" (73a – *Llysieulyfr Salesbury*, Ll.G.C. 4851)
Sonia hefyd fod y llysieuyn i'w gael o'r Waun hyd Lwydlo – cyffelyb i'r hyn y sylwyd arno gan Plantlife yn 1999. Noder hefyd ei fod yn gywirach na Fuchs yn ei dybiaeth mai hynodrwydd anghyffredin iawn yw cael uchelwydd ar dderi (pe tyfai y cyfryw ar dderwen yna yr oedd o werth mawr yn ôl traddodiad Plinius a nodwyd uchod).

Er cymaint bri chwedlonol am dderwyddon Môn dichon na thyfodd y planhigyn yn naturiol yno erioed. Er cystal botanegydd oedd Hugh Davies, coel blys yw'r sylw hwn yn *Welsh Botanology*:

"I have not seeen this plant; but we can scarely suppose that the Druids had fixed upon, as a favourite residence [Ynys Môn], a spot that did not produce this highly venerated plant; add to this that there is a place in the parish of Llangeinwen which is suppose to take its name from it." (tud. 94)

Er hynny gallai fod ar gael mewn ambell le fel Môn pe byddid wedi ei blannu yn fwriadol. Noda Richard Mabey fod coed bychain i'w cael beth amser yn ôl ag uchelwydd wedi ei feithrin i dyfu ynddynt (*Flora Britannica*, tud. 240).

Naturiaethwr enwog yw **Iwan Edgar** sydd â diddordeb yn hanes planhigion.

Llyfryddiaeth

Davies, Hugh (1813) *Welsh Botanology*
Edgar, Iwan Rhys (1984) *Llysieulyfr William Salesbury* (Traethawd ymchwil)
Grigson, Geoffrey (1974) *A Dictionary of English Plant Names*
Grigson, Geoffrey (1958) *Englishman's Flora*

Mistletoe

This semi-parasite, often of orchard trees, is uncommon in Wales except on the eastern fringes. Its Welsh names mostly refer to its habit of growing high on trees, while 'mistletoe' refers to its spread in bird droppings onto branches. It has long been attributed special powers, the most familiar ones being its qualities as an aphrodisiac. Its effectiveness as a medicine, often cited, is uncertain.

Wildlife-friendly gardening *at Plas Tan y Bwlch*

Photo: APCE/SNPA.

How much of a difference does managing a garden with wildlife in mind really make? **Twm Elias** *and* **Chris Hall** *have collected a wealth of data over ten years to back up their case for wildlife-friendly garden management. As their experience shows, it can make a very big difference to wildlife, and add a rich layer of interest to a fine garden.*

"It's amazing what you can find out when you begin to look – and record". This certainly sums up our experience of wildlife-friendly management and surveying in the gardens of Plas Tan y Bwlch (Snowdonia National Park's Education Services and Environmental Studies Centre) over the last ten years.

Set on the oak-clad south-facing slope of Dyffryn Maentwrog, these 13 acres of gardens have seen tremendous changes during the 270 or so years of their existence. They were originally conceived in the 18th century Picturesque style as a 'naturalistic' garden, stylistically integrated with the greater wild landscape beyond. They have since evolved into the formal and controlled design of the Victorian era, thence to the gentle dilapidation (with significant rhododendron infestation!) of the 20th century before embarking on their latest phase under wildlife-friendly management. Has history come full circle, with the Picturesque reborn, in 21st century guise, as a wildlife-friendly garden set in the magnificent protected landscape of a National Park?

Wood warbler. Photo: Michael Hammett.

The current wildlife enhancement project began in 1993 when, disenchanted with plans by the then newly formed Plas Tan y Bwlch Gardens Trust to develop what would have been yet another restored Victorian garden, we advocated the adoption of wildlife-friendly garden management instead. This latter option, we argued, would save several valuable wildlife habitats and be far more in keeping with the environmental and educational roles of the study centre. Wood warblers, pied flycatchers, a rich insect life (including 27 species of butterflies recorded over the previous 25 years) and lesser horseshoe bats roosting in the house all proved to be invaluable allies to our cause. As a result the Trust accepted our plea and accommodated most of our proposals.

Birdsfoot trefoil. Photo: CCW.

We carried out regular surveying plus casual observations for a wide range of wildlife from the outset, and over the years it has proved invaluable in giving a quantifiable measure of the successes, or otherwise, of various aspects of our new management policy. Thus over the next few years the data showed how planting wildlife-friendly cultivars, habitat creation and some simple modifications to existing practices, including banning pesticides(!), generated huge dividends for wildlife, was significantly more cost effective, and fully justified our new approach.

Garden management soon became wildlife driven. For example, surveys of flowering and fruiting dates identified gaps, which we subsequently filled with appropriate wildlife-friendly plantings. We protected sites for common lizard, nesting birds and rare insects and modified meadow management to meet the needs of species like the small skipper butterfly. A phrase much heard by visitors was: "That's no bramble patch – that's our regular garden warbler nesting habitat!"

The survey results, published as Annual Reports from 1994[1], became the basis for public and professional courses on wildlife-friendly gardening at the Plas from 1995. In the late 1990s, when the Snowdonia National Park Authority was producing its Biodiversity Action Plan[2], we were able to ensure that it included a Gardens LBAP. This uniquely provided ordinary members of the public with a real chance to participate in the biodiversity action process and was eventually implemented via the Snowdonia Wildlife Gardening Partnership, which was the subject of an article by Kate Williamson in the last issue of *Natur Cymru*[3].

Birds

From March 1993 to the present a continuous weekly record of species, numbers and distribution has shown how bird numbers, in response to wildlife enhancement measures, increased by a factor of three in the first four years. During the main breeding season (April–June) of the same period, numbers actually quadrupled.

From the survey results we soon realised that the gardens were important over a much wider area than anticipated. For example, winter flocks of up to 24 jays, usually in poor acorn years, or occasional greenfinch flocks eating *Buddleia* seeds, alerted us to the fact that when food provision by native plants was lacking, our exotic garden flora was attracting birds probably from the whole valley and beyond. Even the roving, mixed flocks of small woodland birds over the winter were far greater in numbers than the equivalent summer population.

Over the summer, converting sections of lawn into wildflower meadows proved very beneficial to some species: flocks of goldfinches, not previously seen, came to feed on sorrel seedheads in mid to late summer and spotted and pied flycatchers were attracted to swoop for insects.

Spotted flycatcher.
Photo: Michael Hammett.

Mammals

Casual records have shown a healthy population of foxes, badgers, small mammals (including water shrew), hedgehogs, moles, an occasional stoat – which made periodic use of log-pile refuges – and nine bat species.

Since 1995 squirrel numbers have declined from a weekly average of 5.5 to 0.8 by 2002. We have a sneaking suspicion that the spread of goshawk into the valley in recent years – they have been seen in the gardens since 2000 – may have a bearing, but this would need to be confirmed. What a wonderful biological control for squirrels!

A chance sighting of a pine marten in 1996 led to a programme of attempted live-trapping by the Vincent Wildlife Trust. Unfortunately the beast itself was never seen again, though several good sightings were subsequently made in other parts of the valley. The baited traps in the gardens, though, gave us a valuable insight into what other wildlife was about, turning up eight individual polecats, a badger, a tawny owl and 14 different feral cats over the next two years. Only a very few of these cats were previously known to us, which raised concern about their true population and its probable impact on wildlife.

Common lizard. Photo: Michael Hammett.

Amphibians and reptiles

Up to 1994 froglets leaving the main pond every summer were regularly being massacred by crows and magpies; after that date we took measures to protect them. This involved not mowing part of the area surrounding the pond, which had been managed as a lawn until then, to provide a refuge for dispersing frogs, toads and newts. This proved to be highly successful and much appreciated by our resident grass snake population – which consequently boomed. Life is hard if you're a frog!

Cave Spider Meta menardii. Photo: Michael Hammett.

We encouraged the grass snake population further by providing hidden wooden compost bins throughout the gardens. These labour-saving receptacles, reducing the time and effort it takes to transport leaves and grass cuttings off-site, have been invaluable for egg-laying and hibernating, and are shared over the winter with hedgehogs and small mammals.

Identifying common lizard sites in dry-stone walls allowed us to keep those sites shade-free, and as a result the lizard population has flourished.

Invertebrates

Surveys and casual records have turned up a good number of interesting species, including 30 butterflies, nine dragonflies, 344 macro-moths (including Ashworth rustic, Weavers wave and white spotted pinion, which are high priority BAP species in Wales), and several other insect species in the nationally scarce and Red Data Book categories.

Knowing what is present and what their requirements are has proved to be crucial for the conservation of some species, for example; conservation of navelwort for the rare hoverfly *Cheilosia semifasciata*; successfully protecting and expanding the range of the cave spider *Meta menardii* through habitat creation and consolidation in an outbuilding; and in the case of the rare mason bee *Osmia parietina*, providing extra nesting sites, planting birdsfoot trefoil as a nectar source and ensuring that sites were protected from disturbance during garden restoration works.

Plants

On sunny days we conduct simple surveys of which flowering plants attract most nectaring insects: this involves listening and recording which plants "Hummmm" the most! We have extended the nectar season by selective planting and included night-scented varieties of evening primrose and honeysuckle to attract moths.

Apart from establishing a collection of Welsh and British *Sorbus* species, whose flowers and berries are very attractive to wildlife, plantings have almost invariably been of exotics. Being surrounded by a reasonably rich variety of native plant communities, including several blocks of the Maentwrog Woodlands National Nature Reserve, and with small, richly endowed wildflower meadows already in the gardens, it seemed unnecessary to add to the existing native stock and better to expand the range of provision with exotics.

As part of the International Conifer Conservation Programme, we are also doing our bit for international biodiversity conservation by providing a home for a number of tree species which are highly endangered or even extinct in the wild.

The survey records over the last 10 years have provided a rare insight into the richness and diversity of wildlife in a single garden. They quantify some aspects of how changing to a more wildlife-friendly management regime benefits biodiversity in practice.

Apart from Jennifer Owen's classic pioneering study of a small suburban garden in Leicestershire[4] and the recent initiative at the RHS's garden at Hyde Hall[5], we know of no other similar studies but, hopefully, that may well change as the value of gardens as wildlife habitats and refuges is finally recognized.

Twm Elias is a Senior Lecturer and **Chris Hall** a former Head Gardener at Plas Tan y Bwlch.

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2 Awdurdod Parc Cenedlaethol Eryri / Snowdonia National Park Authority (1999). *Bioamrywiaeth yn Eryri / Biodiversity in Snowdonia*.
3 Williamson, Kate, (2004). *Gardens – sanctuaries for wildlife*. Natur Cymru, 10.
4 Owen, Jennifer, (1991). *The Ecology of a Garden: the first fifteen years*.
5 Wilson, Mathew, (2002). *RHS Garden Hyde Hall Wildlife Report*.

Garddio bywyd gwyllt

Gall arbrawf ym Mhlas Tan y Bwlch newid barn pobl am gyfraniad gerddi at gynnal bioamrywiaeth. Yn 1993, penderfynwyd creu gardd fywyd gwyllt yno, yn hytrach nag adfer gerddi Fictorianaidd. Trwy blannu planhigion sy'n denu creaduriaid, trwy greu cynefinoedd ac addasu arferion, bu ennill mawr o ran bywyd gwyllt a chostau. Cyn hir, ystyriaethau bywyd gwyllt oedd yn arwain y garddio – gyda phlannu bwriadol, er enghraifft, i gael rhagor o neithdar neu greu a rheoli cynefinoedd ar gyfer rhywogaethau penodol.

Dyma enghreifftiau o'r llwyddiant:

O fewn pedair blynedd, treblodd nifer yr adar a gwelwyd bod y gerddi'n gallu gwneud iawn am brinder bwyd mewn gaeafau caled. Mae poblogaethau iach o famaliaid. Mae newid arferion rheoli'n helpu amffibiaid. Nodwyd sawl rhywogaeth o greaduriaid prin di-asgwrn cefn, gan gynnwys 30 math o löyn, 9 math o was y neidr a 344 o facro-wyfynnod. Mae arolwg y deng mlynedd diwetha'n dangos sut y gall garddio bywyd gwyllt helpu bioamrywiaeth.

Greater horseshoe bats *in Pembrokeshire*

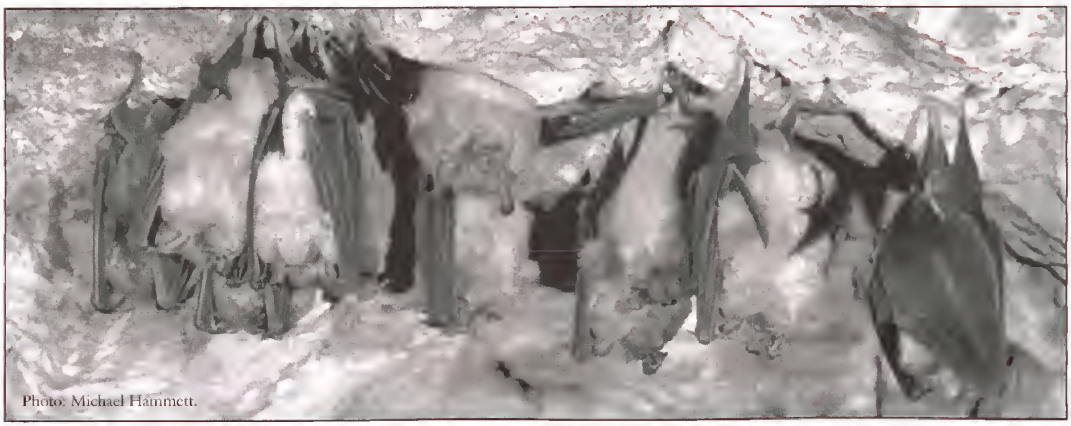


Photo: Michael Hammett.

With a wingspan of around 400mm and exceptional aerial grace, the greater horseshoe bat has long transfixed researchers, as much by its personality as by its rarity. Its foothold in buildings and caves along the limestone coastline of south Pembrokeshire has become a stronghold. ***Bob Haycock*** *reports on a conservation success story, which has seen the number of young bats leaving two favoured maternity roosts increase fivefold in the last fifteen years.*

Cockchafer. Photo: Gaynor Ainscough.

I know of few more inspiring sights than to watch a colony of greater horseshoe bats, adults and juveniles, emerging from their nursery roost at dusk on a summer's evening. It is a distinct privilege to work for the benefit of one of Britain's rarest species of bat.

This is a species whose numbers throughout their range in northern Europe fell sharply during the 20th century. Recently published information estimates the total UK population to be about 4,000 individuals. These are distributed between a number of summer breeding colonies (maternity roosts) and their associated hibernation sites (hibernacula), confined to southwest England, and to south and southwest Wales.

Roosting sites

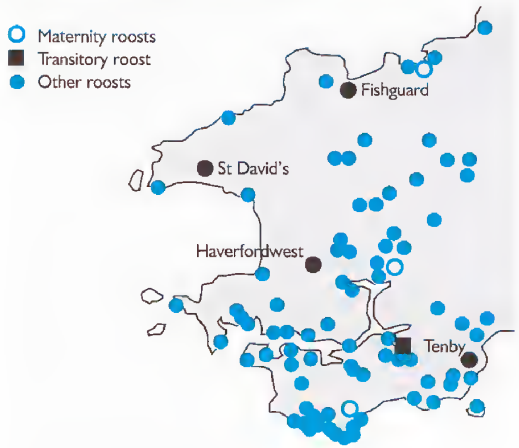
There are just five maternity roosts currently confirmed in Wales. Three of these are in Pembrokeshire (near Newport, Haverfordwest and Pembroke), collectively accounting for as much as 15% of the total UK greater horseshoe population. It is also the most north-westerly population in Europe. All three breeding sites, and a transitory roost to the east of Pembroke (used by significant numbers of non-breeding bats in spring and autumn), are considered to be of European importance.

In addition to the core breeding sites, the bats use very many more overnight roosts and hibernacula. All such sites have a special significance to the individual bats that use them – they range from farm outbuildings, castles and Victorian fortifications, churches and ruins, to natural caves, mine adits, tunnels, cellars, heating ducts and disused chimneys. Unlike smaller bats, most of which can crawl and squeeze through tiny gaps to gain access to roosts (often into quite small crevices), greater horseshoes need larger sites into which they can fly. Some bats habitually choose to use these sites for longer periods, rather than returning each night to the main maternity roosts. Some are regularly used by male bats to attract females in the autumn and thus may be important mating sites. Many other roosts undoubtedly exist but so far have not been found or adequately recorded.

Foraging areas

From Fig.1 alone, it is immediately obvious that these bats range over quite a significant proportion of the lowland and coastal landscapes of Pembrokeshire. Radio-tracking (using tiny radio-signal emitting tags, glued temporarily to the backs of individual bats) and bat-detector studies have provided evidence that bats from these maternity roosts use an area of some 2,000 km^2 within west Wales. We know that the availability of core feeding and roosting areas within a few kilometres of the maternity roost may be crucial for the long-term survival of the population. Within Pembrokeshire research carried out in the late 1990s has shown that some adults can travel at least 14 kilometres to reach suitable feeding grounds and then return to the maternity roost the same night. Such large landscape-scale requirements within the catchments of the maternity roosts have important implications for the way we manage the countryside of Wales now and in the future.

Figure 1: Known roost locations in Pembrokeshire



When weather conditions are suitable, the bats forage during the night for various kinds of insects. Amongst the most important prey species are various beetles associated with animal dung, and insects associated with grassland, woodland or hedgerow vegetation, including cockchafer beetles, craneflies and various large moths. The insect species available to the bats vary during the year; they also use more than one feeding method to catch them. These include hawking low over pasture, gleaning insects from vegetation, fly-catching from branches of hedgerow or woodland-edge trees, rather similar to the way some birds fly out from trees to catch flying insects, and also capturing prey directly from the ground.

To reach their feeding grounds the bats use an extensive network of sheltered feeding corridors, linked to their roosts by tall shrubs, ancient wooded valleys, copses and mature hedgerows. The bats are seldom far from well-structured cover. The majority probably feed within just a few metres of edge habitats, such as tall hedges or tree lines, but they also feed along Pembrokeshire's indented sea-cliff coastline and vegetated coastal slopes. How they feed and forage depends on the presence, structure and juxtaposition of suitable cover with feeding areas, and the proximity of suitable night feeding-roost sites.

Importance of the coast

It is likely that greater horseshoe bats were once much more dependent on caves for breeding, as well as for hibernation. There is no current evidence of a cave breeding colony of these bats anywhere in Wales, but a recent study has shown that several bat species, including greater and lesser horseshoes, regularly use many of the hundreds of sea-caves along the south Pembrokeshire limestone coastline, either as overnight feeding roosts, or for winter hibernation. These caves are important for a significant proportion of the Pembrokeshire population. One cave complex alone supports more than one hundred, mainly juvenile, bats in some winters. When peak winter numbers are present it may, therefore, hold most of the west Wales population of bats born the previous summer! It is likely that many other important roosts occur along the coastline, but such sites are difficult to explore and so the total number remains unknown.

Greater horseshoe bats associated with south Pembrokeshire roosts have an historical affinity with the coastal zone, there being extensive areas of grazed semi-natural vegetation, including herb- and invertebrate-rich rough grassland, downland and heath, interspersed with patches of scrub, hedgerows and woodland. Extensive tracts of neutral grassland within the Castlemartin Range may be particularly significant. This vegetation, possibly the largest block of its type in Wales, is maintained in suitable condition for the bats by sheep brought down from the Preseli hills for the winter, and at other times by cattle. In summer months quite a lot of the vegetation remains ungrazed and develops into insect-rich hay meadows. The bats also

visit cattle-grazed pastures and hay meadows within several kilometres of their maternity roosts. These include a number of Tir Gofal farms (including organic farms) where there are important populations of larger insect prey and a range of day roosts or night-time temporary feeding roosts.

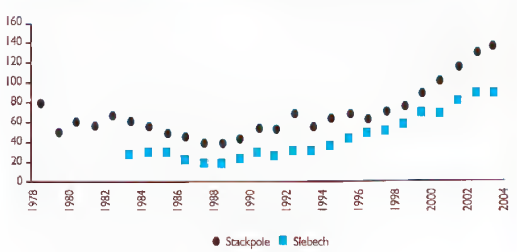
Studying the bats

Finding out about feeding and roosting activities requires painstaking detective work, often at night. Members of local Bat Groups in west Wales undertake much of the recording, but our knowledge of these bats has been greatly advanced by experienced, licensed bat workers, such as Tom McOwat, who has been recording and studying greater horseshoe bats in west Wales for more than 25 years. Bat detectors have been an invaluable aid. Hand-held detectors convert bat ultrasound (emitted by greater horseshoes at a frequency of about 83 kHz) to audible and characteristic soft warbles; sounds that are distinctive, quite unlike any other species of bat. The bats can be detected as they pass along regularly used flight-paths, flying at human chest or knee height. It is also worth looking out for the fairly distinctive droppings and evidence of prey remains, such as moth wings or beetle wing-cases (elytra), during day-time searches of suitable buildings. These may reveal the presence of bats, and provide clues to their recent activities. Searches of known or suspected roost sites require a certain amount of training and a CCW bat licence.

Population changes

Following worrying declines in their numbers during the 1980s, the west Wales population of greater horseshoe bats currently appears to be expanding again. A fairly long run of generally mild winters, plus better protection of their maternity roosts and appropriate management of key feeding corridors, has helped improve winter survival and recruitment to the breeding population.

Figure 2. Current growth in numbers, based on annual measurements of productivity at the two largest Pembrokeshire maternity roosts



These bats are long-lived animals, which only start to breed when about 3 years old and have a single baby each summer, so growth in the population will inevitably be slow. With improved knowledge of their ecology, a growing take-up of agri-environment schemes (e.g. Tir Gofal), and through local Biodiversity partnerships, we are now in a much better position than ever before to raise the profile of these charismatic animals. We need to be vigilant to ensure that the undisturbed roost sites and feeding conditions they require does not diminish. Regular surveillance will continue to be an important tool to measure changes and the overall health of the bat population.

Bob Haycock, Senior Reserve Manager for CCW in Pembrokeshire, is a member of the local Bat Group, with a long interest in the bats and birds of the area.

Acknowledgements

Special thanks must go to **Tom McOwat** and **Bob Stebbings**, for all they have done for these bats and to my Annie for her comments, at short notice, on the draft text.

Ystlumod mawr Sir Benfro

Mae ystlumod trwyn pedol mwyaf yn cyfareddu pobol oherwydd eu maint, eu gosgeiddrwydd a'u natur. O bum clwydfan fagu yng Nghymru, mae tair yn Sir Benfro'n cyfri' am 15% o'r 4,000 ystlum yn y DU. Dyma'r boblogaeth sydd bellaf i'r gogledd-orllewin yn Ewrop. Tros 15 mlynedd, bu cynnydd o bumgwaith yn nifer yr ystlumod ifanc sy'n gadael dwy o'r clwydfannau – cafwyd cyfres o aeafau cymharol dyner, gwell gwarchodaeth ar glwydfannau a rheolaeth addas o'u llwybrau bwydo. Yn ogystal â'r clwydfannau magu, mae'r ystlumod yn defnyddio clwydfannau tros nos a thros y gaeaf – o ogofâu a thwneli i eglwysi ac adeiladau fferm. A hwythau'n defnyddio llwybrau cysgodol i fwydo tros ardal o Aberystwyth i Benrhyn Gŵyr, gan fyw ar drychfilod sy'n gysylltiedig ag amaeth, coed a gwrychoedd, mae rheolaeth cefn gwlad yn allweddol. Mae creigiau glannau Penfro hefyd yn bwysig o ran lloches a bwyd. Rydym mewn gwell sefyllfa nag erioed i godi ymwybyddiaeth a gweld cynnydd pellach, ond bydd angen gwarchod clwydfannau a mannau bwydo, a bod yn wyliadwrus.

Restoring the fens at *Cors Geirch*

Intermediate bladderwort
Photo: CCW

The great East Anglian fens were drained at the hands of Dutch drainage engineers more than three centuries ago, and there is now much talk of trying to put them back. Wales has its own exceptional fens, like Cors Geirch on the Llŷn peninsula; never fully drained, its fenland carpet has been recovering, with the help of a bold piece of reverse engineering, and subsequent careful monitoring, as ***Dyfed Jones*** *and* ***Les Colley*** *report.*

Cors Geirch is a large wetland system, hidden in a valley which runs between Nefyn and Pwllheli on the Llŷn peninsula. The site is remote, where mobile phone communication is difficult, especially with the office!

This tranquil site supports nationally rare plants and invertebrate species. Several distinct wetland areas are connected by partially drained rush pastures, which can support remnant fen vegetation, particularly within ditches and small seepage areas. There are few other examples of rich fen in north Wales outside of eastern Anglesey.

Cors Geirch is thought to occupy the site of the proglacial Lake Bodfaen and the peat body is underlain by impervious Irish Sea Till (a glacial deposit). It lies in a valley formed between ridges of calcareous sands and gravels, deposited by retreating ice-sheets. Rain seeps through these deposits dissolving minerals and then emerges as springs along the sides of the valley where it meets the Irish Sea Till. These springs feed water into Cors Geirch and lead to the base-rich nature of the site.

This explains the presence of several scarce mire and swamp communities within the intact fen areas. Slender cotton-grass is found here at one of its very few known sites in Wales, and there are two populations of narrow-leaved marsh orchid, which grow amongst tussocks of black bog-rush.

The scarce intermediate bladderwort occurs here in an isolated location at the southern-most end of its range. Marsh hawk's-beard is also at the edge of its range, grass of Parnassus is plentiful, and there are good populations of broad-leaved cotton-grass and marsh fern.

Bog myrtle, marsh cinquefoil and numerous sedges are commonly found at this site.

The exceptional biodiversity of the fen includes many rare invertebrates, such as the marsh fritillary butterfly, and two whorl snails *Vertigo geyeri* and *V. moulinsiana*. This is the only known British site of the ground beetle *Chlaenius tristis*, and the only known breeding site in Caernarfonshire of the hornet robberfly. Blue-tailed damselflies, small red damselflies and narrow-bordered bee hawk moths can all be seen here. Water voles, song thrushes and skylarks are three Biodiversity Action Plan species present at Cors Geirch.

Historical 'improvement'

Cors Geirch has not escaped the post-war period of agricultural intensification entirely. The whole site has been affected to varying degrees by drainage, and parts, particularly in the central area, have been converted into improved grassland. Part of the site was used as a refuse tip by the local authority from the 1950s to the late 1980s, which damaged areas of considerable fen interest. The opportunity existed to turn the tide and restore a rich biodiversity to improved and biologically sterile areas.

Photo: Michael Hammett.

Cors Geirch is the only known British site of Chlaenius tristis.

Narrow-bordered bee hawkmoth. Photo: Michael Hammett.

A report by the University of Sheffield entitled *Cors Geirch – Potential for the restoration of a Wetland reclaimed for agriculture* (July 1992) concluded that the improved fields were relatively but not excessively fertile: it would be possible to re-instate more species-rich fen communities on the improved fields by reducing the efficiency of the drainage and the fertility of the peat.This could be done by mowing over a period of years or by the removal of the enriched peat layers.

In the summer of 1993, CCW purchased a large block of improved land in the central section and set up baseline monitoring, with the intention of repeating the monitoring after the removal of a hay crop in August of that year.

However, in the autumn of that same year, a chance opportunity presented itself when the local authority employed contractors to landscape the refuse tip and restore it back to agricultural land. The contractors required a layer of top soil and we offered them the nutrient-laden peat from the large area of dull, rush-dominate pasture which we now owned. A major peat removal exercise began, involving hundreds of truck journeys over a fortnight to strip 30cm of peat from an area extending to around 5.5ha (13.5acres). This was a major fen restoration scheme which had the combined effect of reducing fertility and raising the water table, and did not cost CCW a penny!

Ponies at Cors Geirch. Photo: Les Colley.

At the same time, we made sure that remaining fragments of fen interest were not removed, and diverted spring water onto the excavated area by creating bunds. Since the excavated area occurred in the most agriculturally improved part of the site with very little adjacent fen vegetation, we decided to introduce some suitable colonist fen species from other parts of Cors Geirch to accelerate the colonisation of the area.

We collected a variety of fen species from within the site, including *Spahgnum capillifolium* and *Calliergon cuspidatum*, and planted these in various suitable locations.

At about the same time, Les discovered that a few plants of tufted-sedge had been accidentally excavated by contractors creating a boardwalk nearby. Using a wheelbarrow, we moved these tussocks of sedge across the fen. After several trips struggling and pushing the wheelbarrow out of ditches and quaking mire, we managed to plant a few tussocks around the margins of the lake, but despite all our efforts, they did not survive. This was possibly due to being planted on the wave-exposed margin of the open water or to enrichment of the water body.

In contrast, however, one plant of bogbean planted on the unexposed margin of the lake has now spread into a wonderful floating mat of white flowers in early summer.

Species introduced to the new habitat

Blunt flowered rush *(one plant)*
Mud sedge
Marsh St Johns-wort *(4 plants)*
Marsh marigold *(1 plant)*
Slender sedge
Marsh pennywort *(1 plant)*
Black bog rush *(3 plants)*
Meadowsweet
Bogbean
Marsh cinquefoil
Marsh lousewort
Water mint
Round leaved sundew

Colonising the bare peat ground

Since 1993 we have been monitoring the colonisation of the bare peat surface and have watched the interesting changes in the fen vegetation.

One of the first trends was the rapid disappearance of any remaining agricultural species such as perennial rye grass, clover, sheep sorrel and mousear. Instead, wetland species began to colonise the area, including a dramatic increase in rushes, particularly bulbous rush. The diverted spring watercourses were soon colonised by bog pondweed, lesser water plantain, water mint and marsh St. Johns wort.

One of the most interesting plant discoveries was the appearance of the oblong-leaved sundew on

Oblong-leaved sundew. Photo: CCW.

the bare peat surface, making Cors Geirch its only known site on the Llŷn peninsula. It is still a mystery how this species arrived: did it germinate from buried seed or was it carried to the site on the mats laid down by the contractors? These mats were used to allow the trucks to drive onto the peat surface without sinking but may have been used on other peatland sites in the U.K.

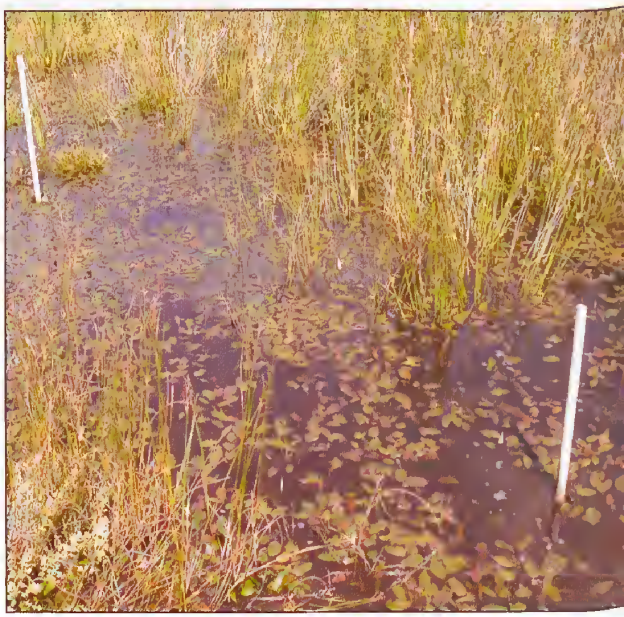
Other notable plants that have colonised the bare peat surface include royal fern, lesser water plantain, gypsywort, narrow buckler fern, marsh lousewort, heath spotted orchid and ten species of sedge compared to the one that occurred in the original rush pasture. There was a danger that soft rush would soon become dominant and out-compete other flowering fen species, so we decided to control it by strimming. We also noticed that willow seedlings were rapidly establishing themselves, so in 1996/97 we began pulling up the seedlings and decided to introduce pony grazing. Soft rush and willow has either remained constant or declined as a result of this control.

During the first three years the areas of bare ground decreased as vegetation developed, but since the introduction of pony grazing the amount of bare ground overall has remained broadly the same, which encourages the colonisation of a more diverse range of fen species.

A mosaic of wildlife

Distinct vegetation zones have developed since 1993. Most of the site could be categorised as fen meadow supporting jointed, sharp-flowered and bulbous rushes, together with grasses Yorkshire fog and creeping bent. The most common sedges include *Carex demissa* and *Carex panicea*, while the most frequent flowering plants include lesser spearwort, tormentil and marsh pennywort. Acid grassland and dry heath, colonised by heather, purple moor-grass and heath grass, occur on areas where peat was stripped to the underlying mineral layer.

An area of open water supporting reedmace and bog bean provides ideal habitat for breeding mallard, coot and moorhen, together with overwintering shoveler, pintail and teal. This area is also used by a variety of birds on passage including little stint, black winged stilt, dunlin, greenshank, redshank, green sandpiper and common sandpiper. There are signs of water vole and water shrew, and in the spring of 2004 we monitored up to nine breeding pairs of lapwing on the restored wetland, a major success. Skylark, snipe and meadow pipit also breed within the restored area and jack snipe, a winter visitor, has become more numerous.



Bog pondweed colonising a new watercourse. Photo: Les Colley.

This wonderful wetland ecosystem supports a good invertebrate interest including yellow meadow ants, which provide food for green woodpeckers, and green-veined white and orange-tip butterflies, whose food plant is cuckoo flower which has colonised the bare peat surface.

Other invertebrate interest includes golden-ringed dragonfly, scarce blue-tailed damselfly, keeled skimmer, common emerald damselfly, common blue tailed damselfly, hornet robberfly, hedge brown and meadow brown butterflies, grasshoppers and cardinal beetle.

The beetle *Chlaenius tristus*, which until recently was confined to the southern part of the site, has now been discovered within the small shallow pools that characterise this developing peatland treasure chest.

Hornet robberfly. Photo: Sam Bosanquet.

An example to follow

The success of this restoration scheme could be replicated in other parts of Cors Geirch, such as the northern part of the site where semi-improved rush pasture occurs on deep peat. The close monitoring of this scheme over more than a decade provides valuable guidance for undertaking further restoration both on this site and elsewhere in Wales.

We have learned many lessons during this period. We have seen the impact of undesirable dominant species like bulrushes, and the enrichment caused by waterfowl and gull droppings. We now know how important it is to consider the full range of restoration techniques, including peat stripping, diverting watercourses, creating bunds, strimming, mowing, grazing and the introduction of colonist species.

As a result of this management work, the central, agriculturally reclaimed part of Cors Geirch is now being returned to wildlife, with biodiversity in profusion where there was almost nothing before.

Les Colley is Senior Reserve Manager and **Dyfed Jones** is Conservation Officer for north Gwynedd with the Countryside Council for Wales.

Y gors a'i gwersi

Yn ystod y deng mlynedd diwetha', daeth llond lle o fywyd gwyllt yn ôl i ddarn gwerthfawr o gorstir ym Mhen Llŷn. Cors Geirch yw un o'r ychydig enghreifftiau o gorstir cyfoethog yng Ngogledd Cymru a, chyn 1993, roedd wedi ei ddraenio'n rhannol er mwyn ffermio a'i ddefnyddio'n dip sbwriel gan y cyngor. Yn 1993, pan brynwyd darn o'r tir wedi'i wella gan y Cyngor Cefn Gwlad a phan benderfynodd y cyngor dirweddu'r tip, dechreuwyd adfer rhan o'r gors gan ffrydio dŵr iddi a symud mawn a phlanhigion o rannau eraill o'r safle. Yn fuan daeth rhywogaethau tir gwlyb yn lle planhigion amaethyddol. Rheolwyd brwyn pabwyr a helyg trwy bori gan ferlod ac, erbyn hyn, mae llecynnau amrywiol o dyfiant wedi datblygu. Mae'r llwyddiannau'n cynnwys cornchwiglod yn nythu, llygod a llyg dŵr, sawl planhigyn prin, yr unig enghraifft yn Llŷn o'r gwlithlys hirddail a nifer o greaduriaid di-asgwrn cefn. Yn ei hunig gartre' Prydeinig, mae'r chwilen brin, chlaenius tristus, wedi lledu i lecynnau newydd. Byddai'n bosib ailadrodd y cynllun adfer yma mewn rhannau eraill o'r gors – ac yng ngweddill Cymru.

Fenn's, Whixall & Bettisfield Mosses

Photo: J.L. Daniels

Is it possible to help save a rare habitat, wonderful wildlife and the world's climate all in one go? In the past, peat boglands were drained to provide more agricultural land and the peat was cut and used as fuel. Nowadays the demand for peat-based horticultural products is outstripping the supply and without proper protection these areas could be lost for ever. ***Joan Daniels*** *reports on the successful restoration of one of Wales' largest raised bogs and urges us not to use garden products that contain peat.*

Hidden away on the English/Welsh border is the extensive wilderness of Britain's third largest lowland raised bog, Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses. These 948 ha comprise not only a National Nature Reserve, they have been designated as a SSSI, a candidate European Special Area of Conservation and part of the Meres and Mosses Ramsar Wetland of International Importance – a suitably impressive list of credentials for an impressively long name!

Lowland raised bogs are domes of peat fed by rainwater and are a very threatened and much decreased habitat, mainly restricted to the oceanic fringes of north-west Europe. Britain holds a large proportion – 69,389ha – of what remains. Of this, Wales has 4,086ha, concentrated principally in three large bogs – Fenn's SSSI (17% of the Welsh resource) and the much less damaged Cors Fochno and Cors Caron.

After its near destruction by a dramatic increase in the rate of intensive, mechanised, commercial peat cutting, the central area of Fenn's/Whixall was acquired in 1990 by English Nature and the Countryside Council for Wales for restoration.

Being already severely damaged, with many trackways left by the peat cutting, Fenn's NNR offers many opportunities, compared to more pristine raised bogs, for encouraging the public to save the world's bogs by not using peat. Several of the reasons are given below.

Not just our past – our future too

With an average of only 690mm of rain each year, Fenn's Moss lies at the climatic limits of raised bog growth. The bog water, made highly acidic by Sphagnum bog-mosses, has pickled the plants that grew on the bog to form over 8m of peat. Alternate well-rotted and less rotted bands tell of past climate change. The acid water has also pickled pollen from plants growing in the countryside around the bog, forming an irreplaceable record of past landscapes over the last 10,000 years. Left alone, peat bogs act as important 'global sinks' for atmospheric carbon, so reducing global warming. But human interference in the form of drainage, increased agriculture and forestry, and the use of the peat itself for fuel and horticulture, have allowed this unique record of the past to oxidise away, releasing carbon dioxide into the atmosphere to add to the greenhouse effect.

Fungi thrive on the mosses. Photo: J.L. Daniels.

Photo: © RCHAM

Peat cutting threatened the Moss. Photo: J. Robinson.

Irreplaceable heritage

Fenn's NNR has more known bog bodies than any other bog in Britain, and also one of the earliest, an early Bronze Age man. Like the 3,400 year old pine layer in the peat, which probably marked a standstill period of dry climate, they were exposed by peat cutters and, being less durable, have long since rotted away. Restoration may start the bog growing again but it can't replace the past.

Rare and special plants smothered out and scraped off

Where semi-natural communities persisted at Whixall, competitive plants such as birch, pine, bracken, purple moor-grass and heather had expanded at the expense of typical mire plants such as Sphagnum bog-mosses, cross-leaved heath, common and hare's-tail cotton-sedge and cranberry. Bettisfield Moss was covered by impenetrable self-sown pine forest, leaf litter smothering relict bog plants below, and elsewhere fields and commercial forestry had totally eradicated all mire plants. Typical raised bog plants such as golden bog-moss and waved fork-moss were only left in small patches on uncut areas of the NNR and the insectivorous oblong-leaved and great sundew and lesser bladderwort survived only in one or two peat cuttings on Wem and Whixall Mosses.

Wonderful bog creatures lost

Although the SSSI still has over 1800 recorded species of invertebrates, drainage and habitat loss has benefited common species of the mire margins at the expense of true mire species. The large heath butterfly and white-faced darter dragonfly, for example, have clung on only because of the size of

Bog asphodel.
Photo: J. Robinson.

Brimstone.
Photo: Pete Wilson.

Moss and Cranberry.
Photo: J.L. Daniels.

the Moss and lack of maintenance of the old hand cuttings. Fortunately, 192 red data book and notable species survived. The site can now boast of 623 species of moths and butterflies, beetles (287 species), flies (238), bugs (122), bees, wasps and sawflies (105) and dragonflies (27). However, 50% of the red data book invertebrates known from the site appear to have disappeared over the last 30 years of peat cutting. Birds too have suffered, with waders and wildfowl such as curlew and snipe largely replaced by common passerines, such as yellowhammer and willow warbler.

What cost restoration?

Since 1990 we have cleared scrub and trees, and blocked peat cuttings and ditches with peat dams to raise and stabilise bog water levels at or above the peat surface. Initial leasehold and free-hold costs were £1.6 million, and management costs since have doubled that. The scale of the restoration has until recently employed four site staff and specialist machinery has had to be purchased, a truly massive effort. Clearing Bettisfield Moss alone has cost more than £275,000. A bag of peat would not be so cheap if it included these restoration costs.

And restoration isn't that easy

Restoration aims to restart active raised mire growth. But even when we have blocked drainage channels, occurring every 10m across the NNR, we have not always achieved the necessary critical water levels. A succession of dry years, dry summers arising from climate change, or the slope of the peat surface left after cutting can allow less desirable species to invade. Too deep water encourages erosion, too shallow produces heath rather than bog plants. Farming on adjoining peat can limit, under the Land Drainage Act, how much water levels can be raised without land acquisition. Pollution and mineral-rich waters entering the site can give the wrong water quality for bog plant growth.

Sundew. Photo: J. Robinson.

White-faced darter back from extinction. Photo: B. Bailey.

Cross-leaved heath provides nectar. Photo: Andre Berry.

Cloudberry. Photo: P. Daniels.

Progressively, new techniques and machinery have been developed to deal with peatland restoration, often tried out at Fenn's, including tracked ATVs, tractor-mounted weed-wipers, polythene-lined bunds, interlocking plastic piling, and storm water pipes. To pull the self-sown pine forest off Bettisfield Moss, special machinery had to be floated on the jelly-like peat, on tracks built of pine brash. Many demonstrations of these techniques and machinery have been held at Fenn's – sadly, most recently, to eastern Europeans, whose pristine bogs are now being torn apart for peat for British gardens.

It hasn't been easy to win local support for our actions. Restoring the Moss runs counter to communal efforts to drain it since Mediaeval times, and surrounding land owners, particularly those farming on the peat at the edges of the Moss, feel threatened. Cutting trees down and raising water levels are not popular activities, especially where decaying rural infrastructure such as collapsing culverts and un-maintained drainage channels leading away from the Moss already cause flooding in wet years. However, a sustained local media campaign about the irreplaceable value of the Mosses has generated a new groundswell of support.

The results of the restoration work have been dramatic and very encouraging. Large expanses of feathery and papillose bog-moss and cotton sedges are now forming peat again over much of what was bone-dry commercial peat cuttings. Clearing Bettisfield Moss has had spectacular results. Already sheets of bog-mosses cover large swathes of the site and rare golden bog-moss has colonised depressions where the pines were dragged along. In spring, all over the NNR, the bubbling call of curlews fills the air again as it once did.

Very rare insects such as the pretty picture-winged cranefly *Ideoptera linnei* are increasing in extent, and the white-faced darter has expanded out from its

Photo: Jeremy Moore.

last corners of the site. The NNR is now one of the best places to see dragonflies in Britain, as well as acrobatic hobby hunting them.

We want to encourage people to come to the NNR to see what wonderful places raised bogs are. We hold events ranging from creative writing, bog pine carving and 'build a dragonfly' days to traditional bird, fungi and wildlife walks, or you can follow the three interlinking self-guided routes of the Mosses Trails. Publicity for these encourages everyone to use alternatives to peat.

Joan Daniels is the English Nature Site Manager at Fenn's, Whixall & Bettisfield Mosses NNR.

A lovely place to visit

Come on one of our events, or explore the Mosses and Llangollen Canal at any time by following the MOSSES TRAILS, from Morris's Bridge or Roundthorn Bridge, Whixall.

Sun 18 July – Dragonfly Day – A morning for children to make model dragonflies, a picnic lunch and afternoon walk to see dragonflies on the Moss
Sun 25 July – Woodcarving on the Mosses Day
Wed 11 Aug – Bog Creature Biodiversity Workshop for children – £2.50
Sat 28 Aug – Bats and Moths on the Mosses
Sun 19 Sept – Writing on the Mosses
A creative writing afternoon and picnic tutored by Gladys Mary Coles

All enquiries to Joan Daniels on 01948 880362 on weekdays, or 07974 784799 on weekends www.english-nature.org.uk
e-mail: joan.daniels@english-nature.org.uk

Mawredd y mawnogydd

Mae mawnogydd tir isel ar y gororau'n cynnig ffordd o arbed cynefinoedd a bywyd gwyllt, a hinsawdd y ddaear hefyd. Yn 1990 y daeth mawnogydd Fenn's Whixall a Bettisfield yn eiddo i English Nature a'r Cyngor Cefn Gwlad ar ôl cael eu difrodi'n sylweddol gan gloddio masnachol am fawn. Yn ogystal â bod yn hanesyddol werthfawr, mae mawnogydd o'r fath yn llyncu carbon a lleihau'r broses o gynhesu'r ddaear. Tros y blynyddoedd roedd coed a rhywogaethau eraill wedi disodli planhigion prin ac, er bod mwy na 1800 rhywogaeth ddi-asgwrn cefn yno o hyd, roedd hanner y creaduriaid prinna' wedi'u colli. Drud ac anodd oedd clirio ac adfer y mawnogydd – roedd angen dulliau arloesol i ddefnyddio peiriannau trymion ar dir soeglyd – ond mae'r canlyniadau'n ddramatig. Mae mwsoglau a phlu'r gweunydd yn ôl a'r gylfinir i'w chlywed eto a dyma un o'r llefydd gorau yng ngwledydd Prydain i weld pryfed gwas y neidr. Mae angen dangos i bobl llefydd mor wych yw mawnogydd a pham fod angen osgoi defnydd o fawn.

The black poplar in Wales – *Britain's rarest native timber tree*

The black poplar is found mainly on riverbanks and flood plains. All photos: Dave Thorpe.

Often as isolated trees, their thick, knobbly trunks and crowns dark against the sky, the native black poplar is both a denizen of soft, man-modified river plain landscapes, and a symbol of the mysteries of nature. Once used for basketry, the history of the native black poplar is closely tied up with the activities of our own species. As ***Dave Thorpe*** *explains, the future of the black poplar is in our hands.*

The native black poplar is the UK's rarest native timber tree and tallest native tree. The national population is estimated at between 5,000 and 7,000 trees, mostly confined to Buckinghamshire. Important populations are found in the larger river valleys of Wales. The black poplar grows to 30m tall, some veterans having a stem diameter of 8m. Such trees can be an important feature in the riparian landscape and it is thought that they were much more common in the past. One old name is the 'water poplar', as they are found on riverbanks or in the flood plains of large lowland rivers.

The trees are very distinctive in appearance with arching lower branches with upturned tips, growing to impressive size. The twigs have sticky, yellowish brown buds in winter which have a sweet musky smell. They are dioecious, the males bearing distictive red catkins (dead man's fingers) in spring, the females bearing green flowers followed by prolific down production in June. Native black poplar can be distinguished from non-native poplars and hybrids by leaf shape and hair coverage. The leaves are hairless with blunt teeth along a clear margin. The 3-7cm leaf stalks are conspicuously flattened. The trees typically have strongly fissured bark with strong burring and bosses.

Regeneration and propagation

Trees can regenerate naturally both from seed and from shed branches, but modern agricultural and river management practices provide little opportunity for this to occur. Sexual reproduction is most unlikely as the downy seeds need very particular conditions for germination and very few female trees survive. Genetic studies carried out by the Environment Agency show very little diversity in the UK population.

Many old poplars are decaying.

Artificial propagation is relatively straightforward using long (truncheon) cuttings taken in winter, mostly buried and kept well watered. The loss of the traditional uses for black poplar timber has given little incentive for planting.

Distribution

Despite being ignored in some botanical references, Wales does hold an important population of black poplars. Over 200 trees have been identified in north Wales (Forestry Commission/Denbighshire County Council), mostly in the flood plains of the Clwyd, Dee and Conwy.

The Clwyd catchment has the greatest concentration, where trees are typically found on or close to the riverbank or as standard trees in hedgerows. Most are veterans, but trees are often found in groups, suggesting regeneration from branch fall. Being mostly veterans, of large stature and scattered, many have numerous cavities, often where branches have been lost.

The Dee flood plain has clusters of trees, mostly in the lower stretches of the river, with only a single known female near Chester. Llandrillo near Bala has an important isolated cluster on the upper river. The Conwy has some impressive veteran trees centred in the Rowen and Dolgarrog area and a scattering close to the coast.

There are good populations on the Usk and around Crickhowell and Abergevenny, and some "strange scrubby trees" at Llanelli. A good population exists on the upper Severn.

Because of the lack of regeneration by planting or natural methods, the often senile veteran population is considered to be at risk. Indeed several veterans were lost in storms this winter. The original natural niche for this species is unclear. Flood plain forest is almost all gone, indeed just a few specimens of black poplar have been found in wet woodland or other closed-canopy woodland in Wales. The distribution correlates closely to that of large, meandering rivers with wide flood plains. But within this general distribution it is apparent that many trees have been planted along hedgelines or out of the flood plain.

Gender

Only two trees have been identified as female in north Wales. It is thought that females have either been removed or deselected by man when planting. If so, this suggests a long history of planting and management. One suggested reason for bias against females is the heavy down production in spring. The owner of one of the two females identified in north Wales immediately complained of this feature when I discussed the tree with her.

Veteran trees are vulnerable to storm damage.

Uses

Poplars were valued historically for their timber, which is strong, fire resistant and shock absorbent, the curved shape of the lower branches being ideal for the curved crucks used in traditional timber-frame construction. It was also used in wagon construction and for flooring.

Historical medicinal uses are suggested in a 1579 publication *Curious Clwyd*. The author, Langham, advised that "the leaves and young buds of black poplar, stampt and applyed, swageth the paine of gout in the hands and feet".

Some authors conclude that black poplar was largely cleared from lowland Britain in the late Middle Ages and in the16th Century, for building. But trees were planted for timber at least until modern hybrid poplars were introduced in the mid 19th century.

Most of the trees in north Wales are highly cankered or burred, suggesting possible future use in turnery or veneer.

Genetics

The Environment Agency has studied the genetics of the English and south Wales population, finding 97% to be identical. This suggests a strong historical preference for asexual reproduction. Work is needed to study genetics of this species in Wales.

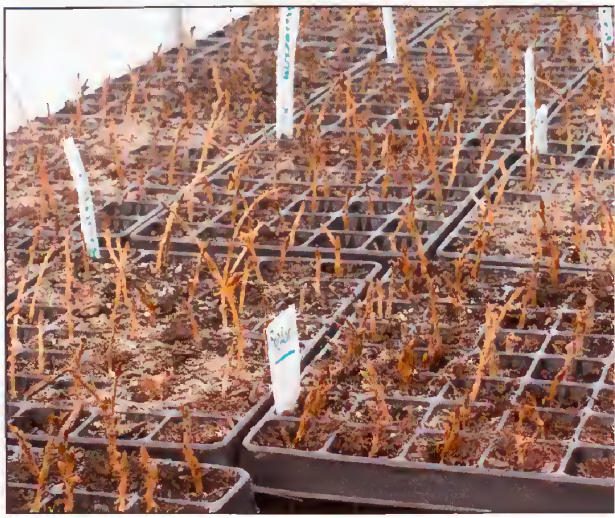
The LBAP process

The native black poplar features in a number of local biodiversity action plans, including those of Denbighshire, Conwy, Wrexham, Snowdonia National Park and Flintshire. The situation in Snowdonia is critical, where only 12 surviving trees have been identified. It is a category 5 species, i.e. a local species of conservation concern.

The relationship between native poplar and other BAP species needs further research. Veteran trees do seem to have excellent potential for providing cavities for bats and possibly otter holts, as they are frequently hollow. The invertebrate assemblage supported by this species likewise merits investigation. Black poplar would be an excellent choice for parkland-style planting in wood pasture habitat as it is both fast growing and stately in appearance.

Current work

- Trevor Thompson (Denbighshire's Tree Officer), as well as conducting an extensive census of the species, has been growing around 100 cuttings each year at Llysfasi College near Ruthin since 1995.
- Alan Jones (EA) planted 1300-1500 poplars on a 5-acre field from local trees near to Llandinam. The original idea was to create a 'flood plain forest' but the site is now valued as a gene bank for local provenance poplars in the upper Severn.
- The Forestry Commission started to make a collection at Usk – which got eaten by sheep!
- Ian Morgan (CCW) has propagated and planted numerous trees in south Wales catchments.
- Mair Rees (EA) propagated and planted 100 trees in SW Wales.
- EA Flood Defence staff in Clwyd have protected individual trees during works.



Hope for the future.

The EA set up a small-scale tree nursery in 2003, producing trees that have been planted at Agency land holdings, on Flood Defence schemes, and Fisheries projects in the Clwyd, Dee and Conwy catchments. They also provided trees to partners in north Wales, including Conwy and Denbighshire County Councils and the National Trust.

In 2004 the EA has employed two nurseries to propagate over 3000 trees in north Wales in the next two years. Stock has so far been obtained from the Clwyd and Dee catchments, with over 200 female cuttings being taken. Further cuttings will be taken next winter from further afield to provide planting material for north Wales and the English Midlands.

The future

It is clear from the gender ratio, historical planting sites and use, that man has had a profound influence on this species. If the vanished flood plain forests were this tree's natural niche, then what future does it have? The removal of intensive agriculture, of river management and of alien poplars from our river valleys is unlikely, at least in the immediate future. We clearly need to intervene to protect this species in Wales. Propagation and replanting to protect the limited genetic stock is feasible.

Native black poplar planting could fill the considerable gap left in the landscape by the loss of the majority of elm trees. The current spread of the tree disease phytophora in alder trees is causing concern in many of Wales' river catchments. Planting of the water poplar may assist in the maintenance of riparian tree cover.

Without intervention, more veterans will be lost and the relic population of this unique and impressive species will face extinction.

Dave Thorpe is the Environment Agency's Biodiversity Technical Officer for North Wales. For information on this vulnerable species, on propagation or planting material, contact him at:
Environment Agency,
Parc Menai, Bangor
01248 48 4077.

Rhag colli'r aethen ddu

Mae gwaith ar droed i feithrin rhagor o'r goeden waith-coed frodorol brinnaf yng ngwledydd Prydain, a'r goeden frodorol dalaf.

Mae gan Gymru boblogaethau pwysig o'r aethnen ddu, gyda mwy na 200 yng ngorlifdiroedd Clwyd, Dyfrdwy a Chonwy yng Ngogledd Cymru a rhagor ar lannau'r Wysg a Hafren, ger Crughywel a'r Fenni ac yn Llanelli.

Mae llawer o'r coed yn hen ac mae peryg y bydd y rhywogaeth yn diflannu heb ymyrraeth i'w hachub, ond mae epilio ac ailblannu yn bosib – mae'r goeden wedi'i chynnwys mewn sawl Cynllun Gweithredu Bioamrywiaeth lleol.

Mae nifer o gynlluniau ar y gweill i'w meithrin, gan gynnwys un gan Asiantaeth yr Amgylchedd sy'n anelu at epilio mwy na 3000 o goed yng ngogledd Cymru dros y ddwy flynedd nesa'.

Fe allai'r aethnen ddu lenwi'r bylchau o golli'r rhan fwya' o goed llwyfen a, gyda bygythiad afiechyd i goed gwern, fe allai helpu i gysgodi glannau afonydd.

Gyda'n gilydd... 1...2...3...

y gwerth, a'r pleser, o gofnodi gwyfynod ar y cyd

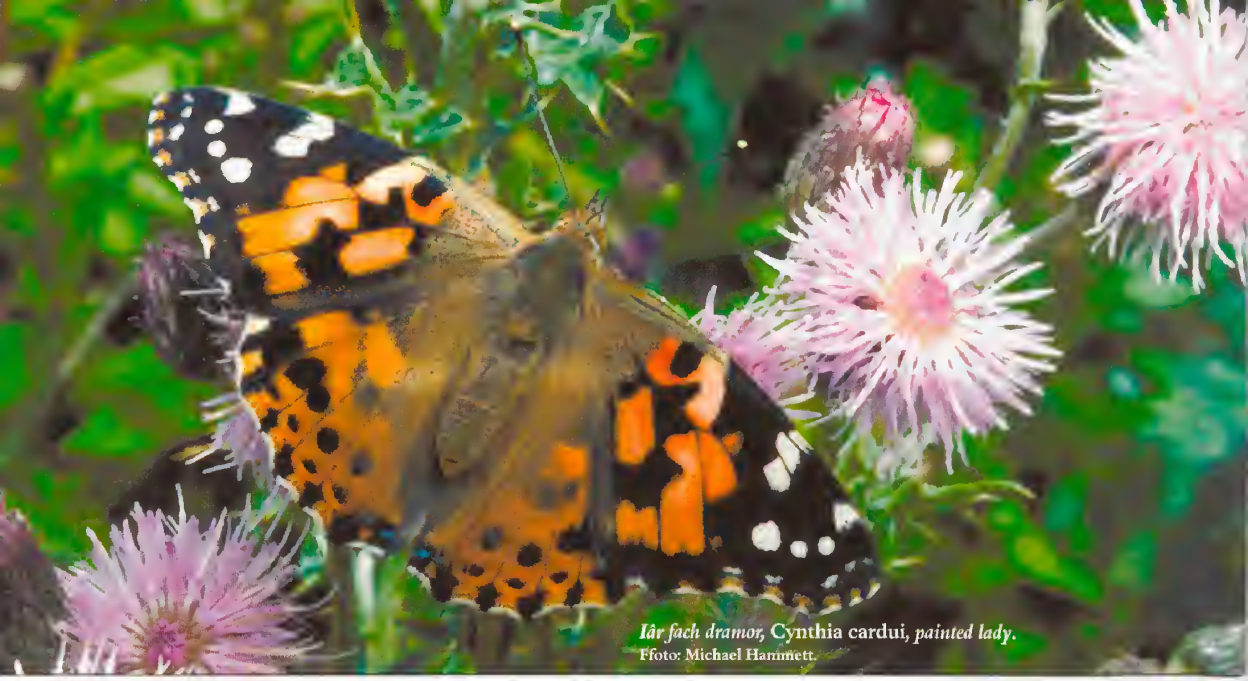
Y cydyn gwelw, Pterostoma palpina, *the pale prominent moth.* Ffoto: Rosemary Winnall.

Mae'r hinsawdd yn ymddwyn yn rhyfedd iawn y dyddiau hyn. Yn wir, mae ieir bach yr haf ymfudol, fel yr iâr fach dramor, yn ogystal â nifer owyfynod, i'w gweld ar adegau annisgwyl iawn o'r flwyddyn. Fel yr esbonia ***Duncan Brown****, fe all cofnodwyr gwyfynod chwarae rhan bwysig yn y dasg o geisio darganfod beth yn union sy'n digwydd, gan ymfalchïo yn y ffaith eu bod yn cyfrannu at y darlun ehangach sy'n ymwneud ag ymddygiad newydd y creaduriaid ymfudol yma.*

Mae'n ystrydeb ein bod ni'n byw ar hyn o bryd mewn cyfnod o newid hinsawdd. Mae'n llai o ystrydeb fod y newidiadau hyn yn gallu eu mynegi eu hunain o ddydd i ddydd fel patrymau tywydd annisgwyl. Peth felly oedd tywydd mis Chwefror eleni. Dechreuodd y mis yn wlyb – yn drychinebus o wlyb pe gofynnech i drigolion Llanrwst, o gofio noson y 4ydd o Chwefror. Daeth y mis i ben, o'r 18fed ymlaen, gyda barrug ac eira trwm a fu'n gyfrifol am gloffi trafnidiaeth yr ardal yn ddifrifol.

Ond yn ôl i ddechrau'r mis. Ar y 4ydd, yn Gravesend de Lloegr, cafwyd yr uchafbwynt tymheredd eithriadol o 18°C. Yn ddiddorol, ar wyntoedd o drofannau morol y de orllewin y daeth y gwres, nid o'r de tiriaethol. Pasiodd y glaw heibio erbyn y 5ed, ac ar yr 16eg o Chwefror, wrth dorheulo (neu o leiaf wyneb-heulo) yn ein gardd yn y Waunfawr, trwy gil fy llygad gwelais fflach o liw. Yr unig blanhigion a oedd yn eu blodau ar y pryd oedd y saffrwn, ac ar un o'r blodau porffor hyn roedd clamp o löyn byw crand, y math a welwn amlaf ar ôl adegau o wyntoedd trofannol yn ddiweddarach yn y flwyddyn. Yr iâr fach dramor *Cynthia cardui* ydoedd. Ond ni welir hon o gwbl ym mis Chwefror fel arfer. Clywais wedyn fod cyfaill i mi wedi gweld un hefyd yn Nhrwyn y Pig, Aberffraw, ar yr 11eg.

Yn ôl fy arfer wythnosol, gosodais drap golau i ddal gwyfynod ar y 12fed o Chwefror. Deliais ynddo (ar wahân i'r ychydig wyfynod sy'n arferol i'r tymor hwnnw) un llwyd y brwyn *Nomophilla noctuella*, ac un siani dros dro *Agrotis ipsilon*, dwy rywogaeth nad ydynt yn eu cynnal eu hunain ym



Iâr fach dramor, Cynthia cardui, *painted lady.*
Ffoto: Michael Hammett.

Mhrydain, ac, os ydynt yn ymddangos o gwbl – a mympwyol yw eu hymddangosiad – o'r cyfandir y dônt. O holi ymysg y rhwydwaith o wybodusion lleol, buan iawn y sylweddolais nad oedd fy sylwadau yn eithriadol yn yr ardal hon, na thu hwnt. Cafwyd yr un rhywogaethau gan eraill yn Rhiwlas a Threborth (a hefyd o barthau mor bell i ffwrdd â Shetland). Nid wyf am fanylu ymhellach am y cofnodion eraill sy'n hysbys i mi, rhag tynnu oddi ar flas yr adroddiad a ddaw amdanynt gan John Harold ac Andrew Graham, ymhen hir a hwyr.

Sôn ydwyf am *Adroddiad Gwyfynod Gogledd Orllewin Cymru* (AGGOC), teitl moel i ddisgrifio rhestr wybodaeth foel, ond rhestr sy'n adlewyrchu gweledigaeth a llawer o lafur cariad yng Ngwynedd a Môn dros y ddwy flynedd diwethaf. Ni chyhoeddwyd stori 2004 eto wrth gwrs, ond mae rhifynnau blynyddoedd 2001 a 2002 i'w cael.

Ffrwyth astudiaethau natur gonest, syml a thrwyadl sydd yma. Rhestrau ydynt o'r holl wyfynod gafodd eu cofnodi yng Ngwynedd a Môn yn y flwyddyn dan sylw – rhestrau a fydd, o'u hailadrodd yn flynyddol, yn gaffaeliad aruthrol i'r sawl sy'n rhwydo pryfed, yn casglu dail wedi eu mwyngloddio gan lindys neu'n gosod trapiau golau i hudo pryfed o'r gwyll a'r nos. Cefais y pleser o gyfrannu gwybodaeth i'r ddwy gyfrol yma, a minnau'n drapiwr golau selog yn yr ardd acw.

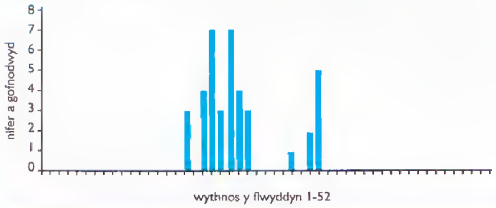
Mae'n dda i ddyn weld ffrwyth ei waith mewn cyddestun ehangach, ond eto yn lleol. A oedd fy nghofnod o'r dagr tywyll *Acronicta tridens* yn fy ngardd yn gywir (rhaid wrth ofal mawr wrth geisio adnabod hwn)? Sawl ehediad o'r cydyn gwelw *Pterostoma palpina* a geir yng Ngwynedd a Môn bob blwyddyn? Mae'r gwerslyfrau'n honni mai dau sy'n digwydd yn "ne Prydain" ac un yn "y Gogledd". Ym mha le y cafwyd nid un, ond tri unigolyn o *Diasemiopsys ramburialis* yn 2002, rhywogaeth na chafwyd yng Nghymru erioed o'r blaen? Gwarchodfa Natur Genedlaethol Morfa Harlech yw'r ateb. Mae'r adroddiadau'n codi, neu'n ateb, pob math o gwestiynau fel hyn.

Mynor cilgant, Drymonia ruficornis, *lunar marbled brown moth.*

Dagr tywyll, Acronicta tridens, *dark dagger moth.*

Mae'r cwestiwn am y cydyn gwelw yn un diddorol. Mae gogledd Cymru ar un ystyr yn fath o 'dir neb', heb fod yn perthyn i'r de na'r gogledd. Meddyliwch, er enghraifft, am flodau'r mynydd gogleddol yn cyrraedd eu pegwn Ewropeaidd deheuol yma yn Eryri, ond blodau'r twyni i raddau mawr yn rhai â chefndir deheuol iddynt, sy'n ymestyn i'r gogledd. O ddadansoddi'r wybodaeth yn AGGOC (gydag ychydig o help yn Ffig 1 o'm cofnodion fy hun yn yr ardd ers 1996), mae'n amlwg fod ganddo ddau ehediad yma, ond gwan yw'r ail ehediad. O gyfuno gwybodaeth nifer o bobl fel hyn am wyfyn nid anghyffredin – ond sy'n cael ei ddal mewn niferoedd bychan, serch hynny – gellir adnabod patrymau arwyddocaol ynghynt nag a wneid o weithio ar eich pen eich hun.

Y cydyn gwelw yng Ngwynedd a Môn fesul wythnos
The pale prominent in Gwynedd and Anglesey



O bori trwy'r adroddiad yn fanwl, cyfyd cwestiynau eraill wrth ddarllen 'rhwng y llinellau'. Mae'r mynor cilgant *Drymonia ruficornis* yn amlwg yn sgîl ei absenoldeb o Adroddiad 2002, er i nifer ymddangos yn yr ardal y flwyddyn flaenorol yn ôl Adroddiad 2001. Pam tybed? Gyda threigl amser, a gwaith cofnodi trylwyr, bydd tueddiadau tymor hir yn eu hamlygu eu hunain, gyda rhywogaethau'n lleihau ac yn diflannu, neu'n ymddangos am y tro cyntaf ac yn cynyddu.

Isoes, mae modd gweld yn yr adroddiad raddfa mewnfudo gwyfynod o'r cyfandir yn 2002, a hawdd fydd cymharu blynyddoedd y dyfodol. Tybed pa mor aml y bydd mewnfudwyr o'r cyfandir yn ein cyrraedd ym mis Chwefror?

Mae **Duncan Brown** yn Uwch Reolwr Gwarchodfa gyda Chyngor Cefn Gwlad Cymru ac yn archwilio gwyfynnod mewn ardal o goed gwern yng Ngwarchodfa Natur Cenedlaethol Coedydd Aber, ac hefyd, o ran ei ddiddordeb ei hun yn ei ardd yn y Waunfawr.

Cyhoeddwyd y cyfrolau canlynol yn breifat, ac fe'u ceir oddiwrth yr awduron, am rodd awgrymedig o £4:
John Harold, Hen Ardd, Carreg y Garth, Rhiwlas, Bangor, Gwynedd LL57 4HD neu
Andrew Graham, Trawscoed, Llanuwchllyn, Y Bala, Gwynedd LL23 7TD.

All together…1…2…3… the value and pleasure of co-operative moth recording

February 2004 had unusually varied and extreme weather, with floods, sunshine and snow. With its disastrously wet start came a mild air stream which brought remarkably unseasonal migrants, including dark swordgrass, rush veneer and a painted lady butterfly, to my Waunfawr garden. These were not isolated incidents. Such observations will no doubt be recorded in good time in the *North West Wales Moth Report* by John Harold and Andrew Graham, to follow the collected records of 2001 and 2002. These reports provide a grand opportunity for moth trappers to see their results in a wider but still local context. Questions arise such as "How many flights of the pale prominent occur in our area?", considering that this species is reported to have one flight in the north and two in the south. North Wales is interestingly placed as being of neither the north nor the south in a Britain-wide or European context. The answer is two flights, and this can be shown from the records published in these reports. With time, rises and falls, gains and losses of species at a local level will become evident. The reports already chronicle rates of moth immigration from the continent. With climate change a reality, how often in the future will John Harold and Andrew Graham be reporting continental migrants in February?

The North West Wales Moth Report is available, for a suggested donation of £4, from
John Harold, Hen Ardd, Carreg y Garth, Rhiwlas, Bangor, Gwynedd LL57 4HD
or **Andrew Graham**, Trawscoed, Llanuwchllyn, Y Bala, Gwynedd LL23 7TD

There are inherent risks in taking on the ownership and management of a former factory, especially when it used to make explosives. Perhaps even more daunting for a Wildlife Trust in one of the UK's greenest counties was learning the value of rubble, and techniques to fast track the site's rehabilitation as a nature reserve rich in biodiversity. There have been plenty of lessons to learn along the way, as ***Frances Cattanach*** *reports.*

Nature's gunpowder plot

The former explosives factory in Penrhyndeudraeth. Photo: ICI Archives.

I was invited to visit Gwaith Powdwr when it was closing down and its owners were looking for a new use for the site. Despite the powerful legacy of industry there, nature was much in evidence, whether in the form of dragonflies, lizards, linnets or heathland plants. I thought it had great potential for wildlife to gain some lost ground, and for people to enjoy the site's views, wildlife and history. So it was an exciting moment when ICI agreed to hand the site over the Wildlife Trust.

Throughout its working life, much of Gwaith Powdwr was mature woodland, scrub, heathland and grassland and had a number of water bodies. The nature of the industrial processes meant that wildlife flourished between the chemical buildings; the night watchman told me enthusiastically about his regular encounters with nightjar and badgers.

There was an explosives works in Penrhyndeudraeth from 1865. At its peak in the 1970s the plant employed 500 staff and produced 9000 tonnes of explosives annually. For a time in the 1960s it was the most advanced chemical works in Europe, but it declined along with the coal-mining industry in the 1980s and closed in 1995.

The Wildlife Trust was closely consulted during the decommissioning process, when over 100 unwanted buildings were demolished and traces of nitro-glycerine were removed. The speed with which the site was cleared was remarkable, and decisions as to what to destroy and what to keep were based on a limited knowledge of their value. Nine buildings were eventually left, which are valuable for bats and birds, and a fascinating reminder of the industry which once thrived.

What to do with it?

We then had to decide on our site management. The areas of semi-natural habitat were straightforward. It was how to manage the inhospitable swathes of bare rubble, left after the building clearance, which required new thinking for the Trust. Rather than ICI's original proposal to bring topsoil on to the site, we began to explore more innovative approaches to enhancing the biodiversity value of the new nature reserve.

At this time, funding was available from the European Life Environment Fund, which encourages the development of innovative techniques in environmental management, and there was a move in the Trust to help natural processes along by creating a habitat on the rubble.

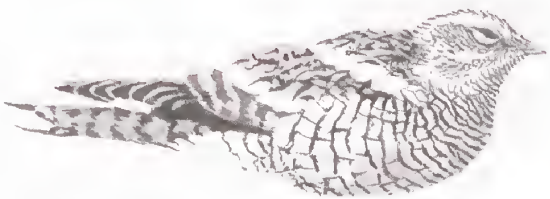
For a Wildlife Trust used to working in one of the UK's best areas for wildlife it was a bit of a culture shock to learn just how valuable habitats which provide opportunities for wildlife at the earliest stages of succession can be. Nigel Ajax-Lewis happily pointed out that half the UK population of shrill carder bee, for example, is found on a 30ha rubble-strewn area at Baglan Energy Park, south Wales. Various sites along the Thames corridor are also very important for invertebrates.

Putting Gwaith Powdwr into context, it is part of an extensive area of semi-natural habitat along the estuary and valley of the Afon Dwyryd and the Vale of Ffestiniog. Much of this is heathland, a rare and declining habitat throughout Europe. We wanted to extend this by adding a well-managed, low-density grazed heathland as a valuable contribution to the ecological unit.

With support from Life, HLF and CCW, we have developed a new technique for growing heathland plants from local seed, and planting 'plugs' containing the mini heathland communities into the inhospitable bare rubble. (See the box, and the leaflet *Ecological Restoration of Gwaith Powdwr*, available from the Wildlife Trust, for further information).

Creative conservation versus natural change

But what is the long-term value of such a technique? Clearly to allow the site to recolonise naturally would have been cheaper, but this project has given us the opportunity to specifically recreate and extend a valued habitat.



Nightjar.

Although superficially some of the restored area is developing towards a heathland, it is a highly complex issue, and we do not understand the processes involved. It will be many years before we have a real insight into the success or otherwise of the technique in creating a heathland.

Four years on, the experimental plots are showing affinities to both a heathland community and a scrub community. Acid grassland is developing on nearby control plots.

The developing plant community is bound to be quite unclassifiable. The heathland plugs were originally like little oases within a desert of rubble. Soil is establishing on the rubble inbetween and natural colonisation is slowly taking place. Some degree of shading from shrubby species may prevent the heathland plugs from drying out in the harsh well-drained conditions of the rubble. In the absence of sufficient management, a traditional heathland is vulnerable to successional changes, and here we are limited in the management techniques we can use. The rubble is so uneven that strimming is not possible. Hindsight is a wonderful thing and levelling the rubble first would have been useful, but would have increased the costs further.

Attempting to create heathland on rubble

- seeds of heathland species were collected by sieving litter from mature heathland on site.
- seeds were sown in pots containing either compost or a mix of compost & water retaining granules.
- the use of water retaining granules had no noticeable effect on either germination rate or viability.
- the resultant pots contained mini heathland plugs, ready to plant out.
- plugs were planted by making a hole the rubble with a crowbar and pushing it firmly in with a handful of compost.
- 15,000 plugs were planted at a rate of about three/minute.
- experiments showed that fertiliser and water retaining granules made little difference to survival and growth, and that plants did not thrive if the pH was above 6.8.
- frequent watering was required for the first two weeks after planting due to dry weather conditions.
- survival and growth was recorded in May and September every year (except 2001 when site access was restricted under UK Foot and Mouth legislation), and monitoring will continue.
- trespassing sheep proved that fencing around the planted area was essential, to prevent grazing, or the plugs being pulled out of the ground.
- after 35 months, approximately 38% of the plugs survived.
- cost was £2,730/hectare (78p/plug) cf. Bickerton Hall, Cheshire @ £5,130/ha (scrub removal from heathland)

We have decided not to use burning on these areas because of the very unlikely possibility of some explosives residues in the substrate. Grazing is our only option, and will have a critical role in determining the future course of the development of the vegetation.

You could argue that allowing the site to recolonise naturally might have given it an equally important biodiversity. Nature has amazing powers of resilience and by giving nature the space and time to re-colonise naturally, the habitat development could go in perhaps unpredictable, but nonetheless interesting and valuable ways. Ours is a relatively quick way of establishing the key species in the target heathland habitat, and because we had a good seed source on site, we have been able to kick-start the growth of vegetation on an inhospitable substrate. We have developed a technique which serves as a demonstration to others, and we are demonstrating the value of heathland to a wide audience. This technique could be used on small sites, in urban areas (to bring the essence of a scarce habitat to a wide audience), on hostile substrates, or where it is important to local people to rapidly enhance a damaged landscape. Unless there are such over-riding reasons, my general inclination, however, would be to allow nature to take its course.

Gwaith Powdwr clearly has a great cultural interest. It has been the site of a major employer for the people of Penrhyndeudraeth for many years, and those people have an interest in what happens to it. We have been working with local people, and are just coming to the end of a formal consultation exercise on the future development of the site. A good core of people is now getting actively involved in management.

We humans have an immense power to influence the natural world, but that power is often abused, leading to the loss of biodiversity which we are all too familiar with. As a nature conservationist it goes against my natural instincts to 'manage' nature reserves. At present, when managing our traditional sites, we tend to halt natural processes to maintain key features, ensuring we keep the pockets of high quality habitat we have left. Managing Gwaith Powdwr has given us the opportunity to use our imagination. We do not have to be too precious about the habitat.

Rather, we can be part of a movement to create new landscapes. We must be imaginative and take opportunities as they arise: agricultural and marginal land can become large nature reserves maintained by herds of free-ranging herbivores. Industrial sites can be places where nature is given its head, and we can enjoy nature's fascinating unpredictability.

Acknowledgements

Special thanks are due to Neil Griffiths and Chris Wynne for their help and advice in writing this article, and to Ralph Oxley, Paul Williams, Sarah Jones, Shaun Wilkes, Tony Child, Les Starling, Kelvin Jones, Alan Wagstaff, Kate & Geoff Gibbs, and members of Penrhyndeudraeth Community Council for their valuable contributions to the project.

Frances Cattanach is Director of the North Wales Wildlife Trust.

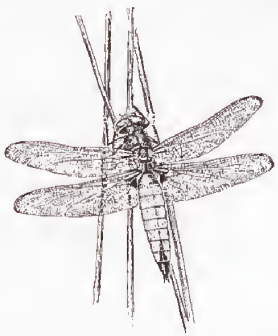
Tyfu tros y rwbel

Er fod Gwaith Powdwr Penrhyndeudraeth ar fynd ers 1865, roedd bywyd gwyllt wedi ffynnu yno erioed. Felly roedd Ymddiriedolaeth Natur Gogledd Cymru wrth ei bodd i gael y safle ar ôl iddo gau yn 1995. Acthpwyd ati i ddyfeisio dulliau newydd o droi rwbel a gwastraff yn gynefinoedd bywyd gwyllt. Un ffordd oedd plannu 15,000 blygiau o bridd gyda hadau ynddyn nhw i greu cynefin rhostir. Byddai modd defnyddio'r dechneg mewn safleoedd bychain trefol, ar dir digroeso, neu lle bo angen adfer tirwedd ar frys. Eto, mae pridd yn dod ar y rwbel rhwng y plygiau rhostir a hwnnw'n cael ei goloneiddio'n naturiol gan brysgwydd. Efallai y byddan nhw'n helpu'r plygiau rhag sychu ond mae peryg o oresgyn hefyd a phori yw'r unig ateb. Fel arfer, wrth reoli safleoedd traddodiadol, byddwn yn atal prosesau naturiol i arbed cynefinoedd o ansawdd uchel. Mae Gwaith Powdwr yn rhoi cyfle i ddefnyddio dychymyg.

Dragons and damsels – *princes of the air*

Four spotted chaser. Photo: Pete Boardman.

At their zenith when the coal measures were being laid down, there is something prehistoric and timeless about dragonflies and damselflies. Be they chasers or darters, demoiselles or hawkers, these insects are worth looking out for, and records matter: Wales is a country rich in these water-loving insects, as ***Steve Moon*** *explains.*



If there's something about summer to keep you going through the dull days of winter, it is the knowledge that there be dragons out there! Dragonflies and damselflies to be precise, but sporting enough colour and diversity in shape and form to be a delight and a challenge to all of us.

Wales is rich in wetlands and water-bodies, so its dragonfly heritage is similarly rich in diversity and numbers. Wherever you go you can find them, and contribute to our ever-growing awareness of what there is and where. There are a number of species for which Wales appears to hold a significant population. These include the beautiful demoiselle, the southern damselfly as well as the golden-ringed dragonfly, while scarce blue-tailed damselfly and keeled skimmer have a particularly Welsh bias to their distribution.

Knowledge of the distribution of many *Odonata* species is patchy, but the last decade has seen a number of publications that have brought these animals, their appearances and names, to the fore, and the interest in them has never been greater. My own interest in dragonflies was stimulated by the publication of Hammond's identification guide in the mid-1970s, at the same time that I took up a job at Kenfig, in south Wales – a site with a stunning array of species. Sorting out what was breeding, whilst encountering migrants and vagrants, was often the highlight of my summer wardening activities!

Common darter.
Photo: Jess Clarke.

But when I arrived at Kenfig in 1976 I was soon to discover that my enthusiasm for these insects was not always shared. I would find people batting overflying dragonflies out of the air; they were convinced that they could either bite or sting, and one of the local names for them was 'horse-stingers'! It was also surprising how people just did not see the damselflies around the site. 'Getting one's eyes in' was the topic of one guided walk, looking at them closely – with the help of a catching net, a clear glass tube and a willing toddler who loved releasing the creatures once everyone had got to see them. There followed a number of initiatives to raise awareness of the beauty and beneficence of dragonflies, if only to point out just how many insects they eat which would otherwise be eating us. My young son and I came to be seen as 'public relations officers for creepy crawlies'!

A great way of getting close encounters with dragonflies and damselflies is to create a pond in your garden. A strikingly attractive dragonfly, the broad-bodied chaser, is often the first to move into a new water body. These are wonderful to watch, as despite their quick 'chasing' about as suggested by their name, they also spend time motionless between chases, clinging to a stem in the open. Once the pond has become established, more surprises can be in store, as you discover from an emerging dragonfly nymph that some species may have been visiting your territory without you knowing. So often you hear of a southern hawker dragonfly, a golden-ringed dragonfly or even a superb emperor dragonfly slowly unfolding and pumping up its wings on a perch in someone's garden pond.

However the enthusiasm is sparked, developing an interest in these animals can lead to a lifetime of recording, study and fascination. The benefits of amateur recording, beyond personal satisfaction, to Wales' army of biodiversity conservation practitioners, cannot be overemphasised.

You can find dragonfly sites by looking for ponds, lakes and rivers on Ordnance Survey maps for your area, especially those in areas of semi-natural habitat, rather than in intensively managed agricultural land. Having found a potential place to visit, choose a day when it is warm and winds are light, when the temperature is around 20°C, and visit in the middle of the day – most activity takes place from mid morning to mid-afternoon. All you need to study dragonflies is a keen pair of eyes, and maybe also close-focussing binoculars (many bird enthusiasts turn to dragonflies and damselflies during the height of summer!). A notebook and pencil, and lots of patience are also necessary!

The uplands of Wales, wherever there is good freshwater habitat, are home to a range of species. Peat deposits, which play a major part in the scenery, provide habitat for species adapted to acid and boggy conditions. Patches of heather are in decline through over-grazing, but there are also vast expanses of purple moor-grass, wiry mat-grass

Emperor dragonfl
Photo: B

Photo: CCW.

Keeled skimmer.
Photo: Michael Hammett.

Banded demoiselle
Photo: Bill Hankers.

Scarce blue-tailed damselfly.
Photo: Michael Hammett.

Southern damselfly.
Photo: Michael Hammett.

Golden-ringed dragonfly.
Photo: Michael Hammett.

Broad-bodied chaser.
Photo: Michael Hammett.

interspersed with areas of bents, fescues and sweet vernal-grass. Bilberry and bog-mosses, heather and purple moor-grass will tempt and sometimes trip up the enthusiast, but the effort will be worthwhile, since here may be found such distinctive species as the black darter, and the keeled skimmer. Golden-ringed dragonflies, just as recognisable, will be found along upland streams, while the scarce blue-tailed damselfly is more of a challenge, and often hard to find on its seasonal and often temporary habitat of acid flushes.

Southern hawker. Photo: John Robinson.

There are also species that are only found in more lowland habitats – the black-tailed skimmer and ruddy darter are still for me the stars of Kenfig Pool. The migrant hawker, however, is the one that many people come across in late summer and autumn, since in a good year this diminutive hawker is still flying (with common darters) into November.

As I commented in Steve Brooks' 1997 field guide, Wales is blessed with 33 species, a reflection of the diverse assemblage of habitats to be found in the country, with a geography that takes in "mountain tops, crags and corries to small coastal peat mires, freshwater canals, dykes and ditches. There are stony lakes and shallow peaty ponds, moors, mires, rivers, marshes, dunes and estuaries, native woodlands and conifer plantations" – and all have potential for supporting dragons and damsels. So as you can see, dragonflies need more than just ponds, and understanding their needs and habits will help you to encourage them as well as discover their haunts. The Shared Earth Trust (www.shared-earth-trust.org.uk) is running a course titled *Discovering Dragonflies* in July this year, and anyone attending will be able to study the 14 species of dragonfly and damselfly that have bred at Denmark Farm. Denmark Farm is a unique project offering a fully equipped training centre running a varied programme of low-cost conservation and other practical courses. The project caters for conservation professionals, landowners and farmers, land managers and land use advisers, students and college groups – in fact, anyone with a keen interest in the countryside and its wildlife. Much of the training draws on the long-standing Denmark Farm case study and is delivered by highly experienced ecologists and conservation professionals.

So why wait? Now is the time to hunt near water for these ancient princes of the air, little changed in appearance since, dancing with dinosaurs, they first appeared in the fossil record during the Permian, 250 million years ago!

Steve Moon is Ecologist for Bridgend County Borough Council. He is a contributor to the *Field Guide to the Dragonflies and Damselflies of Great Britain and Ireland* (For a review of the new edition, see Green Bookshelf, page 42. For further details of Denmark Farm, see page 48).

Gwylio'r gweision a'r mursennod

Mae gan Gymru gyfoeth o weision neidr a mursennod a sawl rhywogaeth yn arbennig o gry' yma. O gymryd diddordeb yn y creaduriaid lliwgar a di-amser yma, fe allwch ddechrau ar oes o gofnodi ac astudio. Does dim modd gor-bwysleisio cyfraniad cofnodwyr amatur i'r fyddin Gymreig o swyddogion bioamrywiaeth. Dyma'r ffordd orau o fynd ati: Edrychwch am byllau, llynnoedd ac afonydd ar fap OS lleol, yn arbennig rhai sydd mewn cynefinoedd lled-wyllt. Dewiswch ddiwrnod cynnes heb wynt cry' a mynd ganol dydd. Yr unig bethau eraill sydd eu hangen yw llygaid craff, sbienddrych, llyfr nodiadau a phensil a llawer o amynedd. Mae amrywiaeth o rywogaethau yn ucheldir Cymru, ble bynnag y mae dŵr croyw ac mae mathau eraill sydd i'w cael ar lawr gwlad. Does dim angen oedi – ewch ati ar unwaith i chwilio am hen dywysogion yr awyr, sydd heb newid fawr ddim ers cyfnod y ffosilau cynta', 250 miliwn o flynyddoedd yn ôl.

Nodiadau'r **Cynulliad** / **Assembly** *Notebook*

gan / by **Gethyn Williams**

Ym mis Mawrth, fe bleidleisiodd Aelodau'r Cynulliad yn unfrydol o blaid mabwysiadu Cynllun Datblygu Cynaliadwy newydd, a thrwy hynny gyflawni rhan o'r ddyletswydd gyfreithiol a geir yn Neddf Llywodraeth Cymru. Ar y cyfan, nid oedd y trafodaethau'n ymwneud â'r Cynllun yn ddadleuol. Ond disgwylir y bydd y *Cynllun Gweithredu*, yn cael mwy o sylw. Cyfrifoldeb Llywodraeth y Cynulliad yw hwn. Fe ddaeth yr ymrwymiad cyhoeddus yma'n ymwneud â datblygu cynaliadwy ar adeg amserol iawn. Yn ystod yr wythnos flaenorol, am resymau amgylcheddol gwrthododd Asiantaeth yr Amgylchedd (yn dilyn cyngor gan y Cyngor Cefn Gwlad) roi trwydded i Borthladd Mostyn ddyfnhau'r dŵr er mwyn ei gwneud yn haws i Airbus – sef cyflogwr mawr yng ngogledd Cymru sydd â chontract i adeiladu adenydd awyrennau – ddefnyddio'r porthladd. 'Swyddi ynteu coed' oedd y dewis – neu efallai y byddai dweud 'cryn dipyn o fioamrywiaeth dan warchodaeth deddfwriaeth Ewropeaidd' yn nes ati.

Roedd y mwyafrif o Aelodau'r Cynulliad a drafododd y mater yma'n pryderu'n am y bygythiad economaidd, gan beidio â rhoi fawr ddim sylw i'r achos amgylcheddol. Er bod yr asiantaethau sy'n gyfrifol am hyn – gan gynnwys Llywodraeth y Cynulliad a'r Adran Drafnidiaeth – yn ceisio dod o hyd i ateb arall, mae'r sefyllfa wedi dangos beth yn union yw barn rhai o'r Aelodau. Fe ddaeth un o Aelodau'r Cynulliad o ogledd Cymru â Datganiad Barn gerbron yn beio Asiantaeth yr Amgylchedd am greu "oedi diangen..." ac am fygwth rhywbeth a oedd o fudd mawr i'r cyhoedd. Yn wreiddiol, cafodd y datganiad ei arwyddo gan saith o Aelodau'r Cynulliad o blith tair o bleidiau gwleidyddol, ond nid yw'r cynnwys mor danllyd yn y diwygiadau a'r newidiadau ag ydoedd yn y datganiad gwreiddiol.

Mewn gwrthgyferbyniad, mae ymateb Aelodau'r Cynulliad i'r newyddion fod Cyngor y Parciau Cenedlaethol yn bwriadu mynd ag Awdurdod Parc Cenedlaethol Penfro i'r Uchel Lys yn sgîl ei benderfyniad i gefnogi prosiect twristiaeth Y Garreg Las, wedi bod yn bur dawedog. O gofio am benderfyniad Andrew Davies (Gweinidog dros Ddatblygu Cynaliadwy) i roi cymorth ariannol i'r prosiect cyn i ganiatâd cynllunio gael ei roi, efallai eu bod yn ei gweld yn anodd iawn deall y mater dan sylw.

Mae'r dadlau ynghylch cnydau wedi eu haddasu'n enetig (GM) wedi tawelu rhywfaint yn dilyn penderfyniad Bayer Cropscience i beidio â thyfu india-corn GM – o'r enw Chardon LL – yn fasnachol, ac mae'n debyg fod Carwyn Jones, Gweinidog yr Amgylchedd, yn falch iawn. Mewn trafodaeth yn nechrau mis Mai, fe ailddatganodd y Cynulliad ei safbwynt trawsbleidiol 'mwyaf llym bosibl' wrth sôn am gnydau GM. Dywedodd Llywodraeth y Cynulliad wrth Aelodau'r Cynulliad y byddant yn parhau i graffu'n fanwl ar yr holl bosibiliadau – gan gynnwys rhoi iawndal am ddifwyno cnydau organig neu gnydau confensiynol – a hynny er mwyn gallu amddiffyn eu polisi'n gadarn, ar sail tystiolaeth bendant, pe bai angen gwneud hynny yn y dyfodol.

Gethyn Williams yw Swyddog Gwybodaeth y Cynulliad ar gyfer Cyswllt Amgylchedd Cymru.

In March, AMs unanimously voted to adopt the new Sustainable Development Scheme, thereby fulfilling part of the legal duty enshrined in the Government of Wales Act. Debate surrounding the Scheme was largely uncontroversial. Greater attention, however, is expected to be paid to the Action Plan, which is the responsibility of the Assembly Government.

This public commitment to the principles of sustainable development came at a very pertinent moment. During the previous week the Environment Agency (following advice from CCW) had refused to grant the port of Mostyn, on environmental grounds, a licence to dredge its docks to increase access for the benefit of Airbus, a large north Wales employer with an aircraft wing contract to meet. A case of 'jobs versus trees' then, or more accurately, some significant biodiversity protected by a raft of European legislation.

The majority of AMs who debated this issue were concerned solely with the economic threat, with scant attention paid to the environmental case. Though all responsible agencies – the Assembly Government and Department for Transport included – are currently trying to find an alternative solution, the situation has revealed the true sentiment of some AMs. One north Wales AM tabled a Statement of Opinion blaming the Environment Agency for what he called their "unnecessary delay..." and threat to the "overriding public interest."

Initially signed by seven AMs across three political parties, revisions and amendments eventually toned the content down.

In contrast, there has been a subdued reaction from AMs to the news that the Council for National Parks is to take Pembrokeshire National Park Authority to the High Court over its decision to endorse the Bluestone tourism development. Perhaps, considering Economic Development Minister Andrew Davies' decision to commit financial aid to the project before the planning permission had been granted, they find the issue difficult to comprehend.

Elsewhere, the GM heat seems to have been taken off Environment Minister Carwyn Jones following Bayer Cropscience's decision to withdraw its pursuit of commercial cultivation of the GM maize known as Chardon LL. The Assembly reaffirmed its cross-party 'most restrictive possible' position in relation to GM crops at a debate in early May. The Assembly Government told AMs they would continue to examine all possibilities – including co-existence and compensation for organic or conventional contamination – in order to construct a robust, evidence-based defence of their policy in case of future need.

Gethyn Williams is Assembly Information Officer for Wales Environment Link.

Green **Bookshelf**
Silff Lyfrau *Amgylcheddol*

A large hawker dragonfly, glittering up and down its regular beat and clicking its wings, can be a trifle intimidating. I would not want to have argued with one of its outsize ancestors 300 million years ago, which had a wingspan of 70cm, or as I prefer to visualise it, the width of two large feet.

I was knee-high to an abundance of grasshoppers on the moor where I spent childhood holidays, in the middle of the kind of nowhere which I have gone on looking for all my life, when dragonflies, and particularly the needle-like red damselflies, first made an impression on me. The site, Dowrog Common, makes an appearance in ***Field Guide to the Dragonflies and Damselflies of Great Britain and Ireland*** (British Wildlife Publishing, 2004, £18.95, ISBN 0 9531399 0 5), appropriately enough as a stronghold for the small red damselfly.

This appearance is in the brief but welcome guide to the best places for these insects in Wales by Steve Moon, (see pp37-40 of this edition). The Field Guide, which is first and foremost designed to help the reader recognise species in the field, has a 20 page section of regional guides, as well as covering life history, distribution, habitats, a key to larvae and useful information: you get a quart in this pint pot.

There is a welcome choice of books with 'dragonfly' in the title. Although it is bang up to date with the latest additions to the dragonfly list, this guide has, like its subjects, real general appeal. I would recommend it to anyone spending long summer days in the field observing nature. It might equally benefit those casting a line in pursuit of the fraternity of fish, the smaller members of which sometimes end up being skewered by dragonfly larvae.

An Illustrated Guide to British Upland Vegetation (JNCC, 2004, £25, available from NHBS, ISBN 1 86107 553 7) is a much heavier tome, in both senses; you would not want to take it in the field with you, but you might want to have it on the shelf in the office. As well as line drawings and maps, there are 16 colour plates and an inviting cover to complement over 450 pages of information on the vegetation communities of upland Britain. This amounts to a considerable publishing endeavour, and it could not have been accomplished without real dedication.

I am sure this will be a landmark book for the specialist audience for which it is intended. It takes forward important earlier work on upland ecology and vegetation, and the analysis it contains will have lasting value. I have a couple of caveats, however.

The purpose of the guide, we are told in the preface, is to focus attention on the nature, diversity and importance of upland habitats. I doubt if this volume will draw in people who are not already well versed in these things. The academic tone of the book makes few concessions to the general reader.

While the guide follows in the footsteps of McVean and Ratcliffe's classic monograph on *Plant Communities of the Scottish Highlands*, it is worth remembering that science cut a lot more ice four or five decades ago, when the work for that book was being done.

The great bulk of the guide consists of descriptions of upland vegetation types, including a key. However, vegetation types are not immutable, they are infinitely varied. Guides like this run the risk of letting people believe that the National Vegetation Classification, rather than being a wonderful tool for setting plant communities in context, represents an absolute truth about the composition of each vegetation community.

Now for something very much lighter: ***Britain's Wild Harvest*** (Kew, 2004, £9.95, ISBN 1 84246 072 2) is an exploration of an unsung industry based on nature – whether collecting marsh samphire or mushrooms, weaving baskets, making medicines or decorating our homes. There are commercial uses of wild plants and fungi that I guarantee will be new to you, and their story is told with great zest, in this slim but beautifully illustrated volume. Here are the strings that bind us to nature.

These strings are evident in a splendid bilingual tome on the ***Birds of Anglesey/Adar Môn*** (Menter Môn 2004, p/b £24.99, h/b £49.99, ISBN 0-9547358-0-3). The authors, **Peter Hope Jones** and **Paul Whalley**, have brought together a huge volume of information, and, as with the JNCC book, I have to commend everyone involved in this enterprise. The subject mixes the wide appeal of ornithology with the deep attraction of locality, in what deserves to be a winning combination. Engaging detail, such as the earliest record and subsequent fortunes of the little owl, a bird which periodically screeches outside my bedroom window, is laced with drawings, lists and maps, the whole providing a source of endless fascination.

Finally, a book that I have wanted to review for some time, also in two languages, whose author has contributed to this edition: ***Cattle/Gwartheg*** by **Twm Elias** (Gwasg Carreg Gwalch, 2000, £3.50, ISBN 0-86381-650-9) is the first volume in a series on Welsh farm animals. Cattle were crucial to the people who first settled these lands, and our histories have been closely linked ever since. The knowledgeable but lively text charts this relationship, describing traditional breeds of cattle, folklore, market changes and much else. Although a week is a long time in agricultural policy, the author is prescient in his concluding section on the future, written a good five years ago. Let us hope that the strengths of traditional breeds like Welsh Black cattle come into their own again, as payments become better geared to the social and environmental benefits of helping to manage habitats properly, rather than the economic goal of producing cheap, tasteless beef as a commodity for the global food market.

Mae **Peter Hope Jones** a **Paul Whalley**, awduron ***Birds of Anglesey/Adar Môn*** (Menter Môn, 2004, c/p £24.99, c/c £49.99) wedi casglu corff enfawr o wybodaeth ynghyd, a hoffwn longyfarch pawb sydd wedi bod yn gysylltiedig â'r fenter hon. Mae'r pwnc yn cyfuno apêl eang adaryddiaeth ac atyniad dwfn bro, mewn modd sy'n haeddu ei wobrwyo. Mae manylion hoffus megis y cofnod cynharaf o'r dylluan fach (aderyn sy'n sgrechian o bryd i'w gilydd y tu allan i ffenestr fy ystafell wely), a'i hynt a'i helynt ers hynny, yn cael eu haddurno â lluniadau, rhestrau a mapiau, ac mae'r cyfan yn ennyn cyfaredd di-ben-draw.

Cattle/Gwartheg gan **Twm Elias** (Gwasg Carreg Gwalch, 2000, £3.50) yw'r gyfrol gyntaf mewn cyfres ar anifeiliaid fferm Cymru. Yr oedd gwartheg yn hollbwysig i'r bobl a ymgartrefodd gyntaf yn y tiroedd hyn, a bu cysylltiad clòs rhyngddynt byth ers hynny. Mae'r testun hyddysg ond bywiog yn dilyn hynt y berthynas hon, gan ddisgrifio bridiau traddodiadol gwartheg, llên gwerin, newidiadau yn y farchnad, a llawer mwy. Er bod wythnos yn amser maith mewn polisi amaeth, mae'r awdur yn dangos cryn ragwelediad yn ei adran olaf, ynglŷn â'r dyfodol, a ysgrifennwyd bum mlynedd go dda yn ôl. Ni allwn ond gobeithio y bydd cryfderau bridiau traddodiadol megis Gwartheg Duon Cymreig yn cael eu dyledus barch unwaith eto, wrth i daliadau ddatblygu gwell cysylltiad â'r buddion cymdeithasol ac amgylcheddol sydd i'w hennill o helpu i reoli cynefinoedd yn iawn, yn hytrach na'r nod economaidd o gynhyrchu cig eidion rhad, di-flas fel nwydd ar gyfer y farchnad fwyd fyd-eang.

James Robertson

Birds, Scythes and Combines:
A History of Birds and Agricultural Change
Michael Shrubb
Cambridge University Press 2003
ISBN 0 521 81463 4 hardback, £35

When I started birdwatching in Rutland in the early 1970s, tree sparrows, corn buntings and yellowhammers were all common. Yet, as Mike Shrubb shows in this comprehensive study of birds and agriculture, we were on the edge of a catastrophe for farmland species, the seeds of which had been sown some ten years before.

Shrubb, a Councillor with both the BTO and the RSPB, has also farmed in Sussex and Brecon. With a foot in both camps, he is one of the few people who could write such a book with any credibility.

He casts his net wide. Agricultural land is defined as land used for any kind of farming, from upland peaks to lowland flood meadows. The list of 'farmland' birds is similarly extensive including, at first sight, such unlikely candidates as long-eared owl. However, for the bulk of the book, Shrubb concentrates on the main species of concern. To paraphrase Bill Clinton, "it's the waders and seed eaters, stupid".

His story starts in 1750, which marks the dawn of the agricultural revolution and serious farming records, as well as the emergence of the first county avifaunas. It was a time of almost unimaginable bird richness. In Wales, black grouse bred in all counties except Anglesey whilst marsh harriers nested along the coast from Lavernock Point to the Great Orme. Elsewhere, the great bustard was present over much of southern England, East Anglia and Lincolnshire.

The next 150 years saw great habitat change. Fenland was drained and common land destroyed during the enclosures. Shrubb includes some fascinating historical titbits. The enclosure of common land, known by its manorial term 'waste', and the effective confiscation of a way of life, was justified by smearing commoners as 'idle wastrels'. As a consequence, 'waste' acquired its pejorative meaning that it retains to this day.

The 19th century was, in Shrubbs words, "unrivalled for the destruction of our bird populations". One Norfolk dealer was supplying up to 700 eggs to London shops a week, including such delicacies as ruff, curlew and even black tern. Yet for all that, Shrubb maintains that the countryside retained an essential richness. At every turn there were winners and losers. The great bustard disappeared shortly after enclosure. Persecution pushed seven species of raptors to extinction, or close to it. But others, notably redshank, expanded their range, whilst finches and buntings feasted on the rich pickings in tilled land and around farmsteads.

However, the 20th century saw a steady decline in most farmland species, which accelerated after 1950, as sterile arable crops and 'ryegrass deserts' took over. Shrubb asks why landowners have been reluctant to accept that this habitat degradation has caused declining bird populations, preferring to blame 'unnaturally high' populations of birds of prey. It's a good question.

My only disappointment came at the end. Given Shrubb's experience, I was eager to hear what he makes of organic farming, genetically modified crops and agri-environment schemes, yet these receive only cursory treatment. But perhaps this is unfair on what is essentially an historical work. Oh yes, and I forgive you, Mike, for referring to Monmouth as an 'English' county.

Birds, Scythes and Combines is a detailed account of what has befallen farmland wildlife, the chapter on grasslands being of particular relevance to Wales. The lesson is that we cannot return to some mythical golden age, when red-backed shrikes hunted corncrakes on every village green. Instead, the nation must decide what it wants from an industry it largely subsidises, and work with farmers to achieve it.

When I visit Rutland now, the sparrows and buntings of my childhood are gone. It's hard to see how this can change, but *Birds, Scythes and Combines* opens the door to a more honest and informed discussion of the future.

Andrew Lucas

Marine *matters*

Ivor Rees reports on the growing number of immigrants in Welsh seas

While senior politicians fret over the scale of human immigration and countryside managers worry over invasive plants escaping from gardens, non-native marine species are transferred by man from distant oceans to our seas and shores. Some, such as the warm water species that managed to establish local populations in Swansea Docks during the 1950s, after tankers unloaded in a dock warmed by power station cooling water, merely provide interesting peculiarities for marine biologists. The arrival of other non-native marine species can have far reaching ecological effects. The long list in British waters includes representatives of many taxonomic groups and new ones turn up every few years. There is room here to mention a few examples that arrived by different means.

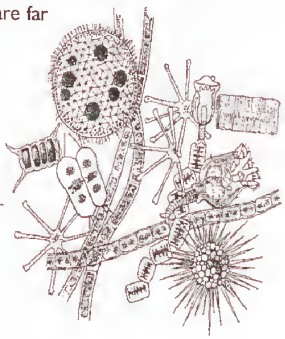
Ever since man began to cross the oceans, fouling species settling on boat hulls will have hitched rides to colonise new areas. Live shellfish were also transported during longer voyages and one of the common bivalve molluscs now in Welsh estuaries, the gaper *Mya areanaria* was brought across the Atlantic soon after European colonies were founded in New England. In the 19th century, as oyster stocks were over-exploited on British coasts, a large transatlantic trade in shellfish inadvertently brought across several species which subsequently became serious pests or multiplied to the point where they have ecological impacts. One such was the slipper limpet *Crepidula fornicata*. Although a filter feeder, it sometimes develops such large populations that they almost completely cover the seabed. They have been in Milford Haven for many years and at present they are common amongst the mussel beds in Swansea Bay. So far they are thought not to have spread to north Wales. Shells on Llanddwyn Island can be misleading as they were brought with material used to harden paths and came from a cockle boiling factory.

Slipper limpets.

One of the best recorded examples of a fouling species that spread rapidly around Wales was the Australasian barnacle *Elminius modestus*. It is thought to have to have been brought to Britain in the 1940s, stowing away on flying boats. Once here it spread at a rate of 20-30 miles per year but with several ship-assisted transfers to new centres. It is now the most common barnacle in Welsh estuaries.

Recent changes in the operational speeds of ships, the turn round times in port and the use of water ballast on large container ships, means that following the worldwide spread of fouling species the next wave of introductions is of species whose larvae or resting cysts can survive in ballast tanks. A local example of this is a large centric diatom *Cascinadiscus wailesii*. This is native to the north Pacific. It was first detected in the English Channel in 1977 and in Continuous Plankton Recorder samples from the Irish Sea off Wales only a couple of years later. By the 1990s it was often the dominant diatom in the plankton off north Wales in autumn and winter. It has probably multiplied to bloom proportions because it is so large that the small calanoid copepods typical of the local inshore zooplankton are unable to graze it. The knock-on consequences for other food chain links and even fish larvae could be considerable.

Arrivals in Wales within the last 5 years, whose spread may have wide consequences, include the Japweed *Sargassum muticum* and an American razorshell *Ensis directus*. The former came originally by way of the shellfish trade, turning up first in northern France before spreading across to the Isle of Wight and then gradually round the coast. This seaweed was found in Anglesey in 2001 and has since spread to several locations on the west coast. It can grow so densely in pools that it out-competes native species. By contrast the American razorshell probably made the transatlantic jump in ballast water. In Europe it was first found near Rotterdam before colonising the Waddensea and the Wash in such numbers that these razorshells were fished commercially and in Holland scoter ducks have recently been seen feeding on them. Conchologists have recorded a few of them in Milford Haven. These are far enough from the established North Sea populations to suggest another ship-assisted translocation.



Ivor Rees is a marine biologist and formerly was senior lecturer in Ocean Sciences at the University of Wales, Bangor.

Biodiversity *news*

Wildlife crime

Sgt Peter Charleston takes a brief look at police protection of wildlife.

In the United Kingdom, most Police forces appoint officers to investigate wildlife crime alongside their other duties, while only a few have officers looking at these issues full time. For almost four years a unique partnership has existed between the Police and the Countryside Council for Wales (CCW), and currently two Police Sergeants work with CCW on secondment, from offices in Bangor and Cardiff. They co-ordinate the activities of all officers investigating wildlife crime.

What exactly is wildlife crime?

Certainly it includes those matters all of us would consider to be socially unacceptable, such as badger baiting, collecting eggs of rare wild birds or poaching, in particular where dogs are used to take down deer. Such activities are often carried out by highly organised criminal gangs travelling the UK and need to be tackled using all the resources available to the Police in forensic investigations. These types of offences are undoubtedly high profile and already receive substantial media attention.

All of us abhor the thought of poachers killing elephants for their tusks; however, nothing more than a cursory search of many internet auction sites reveals a substantial trade being carried out in ivory, by no means all of it illegal but some apparently so. Equally important are the sorts of wildlife crimes that are not always seen at present as being so socially unacceptable – a householder who blocks the access of bats to their roost because he dislikes the fact that they have taken up residence in the roof space of a house, for example.

Prosecutions for wildlife crime are not common but receive a lot of media interest when they occur. However, this is not our preferred option and wherever possible we will work to prevent offences taking place, which will always produce a far better outcome for whatever species we are seeking to protect from persecution.

As in most areas of Police activity, priorities need to be identified, and last year the Joint Nature Conservation Committee was asked to identify conservation priorities that the police service could assist in achieving. The persecution of hen harriers, the illegal trade in endangered species and offences involving bats of all species have now been identified as priority issues for Police wildlife crime officers. Operation Artemis is a national policing operation that has already been implemented to address the issue of hen harrier persecution, and here in Wales it focuses more on illegal burning affecting nest sites than on acts directed against individual birds. The need for regional priorities has been recognised and work is ongoing to identify those issues.

All four Welsh Police forces have now appointed wildlife crime officers, but to be effective we must work in partnership with all who have a common interest in tackling wildlife crime. Nationally, the Partnership for Action against Wildlife Crime (PAW) is composed of many organisations across a broad spectrum of interests and Wales has its own working group to address our own needs. We are at the Royal Welsh show this year; please drop in for a chat.

Sgt Charleston can be contacted on 01248 385784 (north Wales) and his colleague **Sgt Ian Guildford** on 02920 772446 (south Wales).

Butterflies for the New Millennium Project – can you help?

This ongoing project aims to produce distribution maps for all UK butterfly species based on the recording period 2000-2004. Up-to-date records are essential for conservation work, but a large number of 10km squares have been 'lost' for many colonies of key species in the National Action Plan for Wales. These squares are ones in which important butterfly species were recorded during 1995-99, but for which we have received no recent records.

In 2004 Butterfly Conservation is trying to fill these lost squares and can provide a spreadsheet which lists them. Please record any butterflies you see this summer and send your records to your local Vice-county recorder.

Full details can be had from:
Russel Hobson 0870 7706153
rhobson.bcw@btconnect.com
Butterfly Conservation Wales, 10 Calvert Terrace
Swansea, SA1 6AR
Tel: 01792 642972

Under-recorded priority species

Dingy skipper, grizzled skipper, wood white, brown hairstreak, small blue, silver-studded blue, white admiral, grayling, small pearl-bordered fritillary, pearl-bordered fritillary, high brown fritillary, dark green fritillary, silver-washed fritillary, marsh fritillary, wall, large heath.

For details of Butterfly Guardian workshops, see page 48.

Nature *at large*

Wales' County Flowers by Trevor Dines

When you think of the countryside in which you live, the area where you grew up, or one that you visit regularly on holiday, what do you think of in terms of the wild flowers that grow there? This question has been posed to the public in a competition to decide an emblematic flower to represent each county in Britain, and the results have just been announced.

The Plantlife County Flowers competition had one simple aim: to reconnect people with the native plants that grow around them and get them thinking about how important these flowers are. Plants are often used as powerful symbols of identity or expression – the Irish shamrock, or the poppy for remembrance for example. Plants also often appear in local place names – Clynnog Fawr means an 'abundance of holly' while Llanbedr y Cennin comes from the Welsh name for daffodil, cenhinen bedr. We wanted people to think about the plants that grow in their home county and vote for the one they thought best symbolized the area in which they live.

The first round of voting, which closed in December 2002, was open to any plant that anyone wanted to suggest. This, however, produced a problem as so many people wanted the bluebell to represent their county. Being unable to have the same emblem in different counties, it was decided to remove bluebell from the competition and make it officially the nation's favourite wild flower – an emblem for Britain as a whole. We then narrowed the choice down to the remaining top two plants voted for in each county and asked people to decide which of the two they wanted. With over 50,000 votes cast, the winners are a wonderful mirror of the diversity of plants in Britain, and a true celebration of the culture, history and value we place on wild plants today.

In Wales, the thirteen 'old' counties (which are perhaps more relevant to people than the modern and ever-changing administrative areas) have each received an emblem, along with Cardiff as the nation's capital. The list includes the complete range of species, from common and familiar plants that help lend an area a distinctive character, to extreme rarities that are valued for their tenacity to survive.

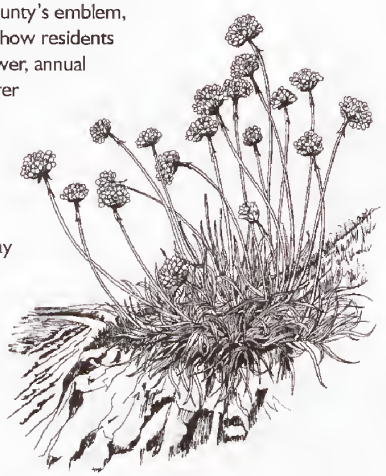
Of the more widespread species, the familiar cuckooflower *(Cardamine pratensis)* is the emblem for Breconshire, where it carpets wet meadows with lilac flowers in April, just as the cuckoo returns. Bell heather *(Erica cinerea)* provides a feast of flowers for bees on open moorland in north-east Wales, where it is valued by the people of Flintshire and has been voted by them as their County Flower. Foxglove *(Digitalis purpurea)* grows in profusion amongst bracken, along waysides and on freshly-cleared areas in Monmouthshire – although common everywhere, it does seem especially frequent in this county. Finally, thrift *(Armeria maritima)*, that familiar plant of rocky coastal cliffs not surprisingly reminds people of the stunning Pembrokeshire coast. All these plants help lend the areas in which they grow a particular character.

Celebrated rarities have been chosen to represent other areas. Caernarfonshire is perhaps defined by its mountains, so what better symbol than the Snowdon lily *(Lloydia serotina)*, so evocative of high mountain cliffs? And what could be more appropriate for Radnorshire than Radnor lily *(Gaegea bohemica)*, discovered in 1975 at Stanner Rocks, its only known British locality. Similarly, Anglesey is famous for its oceanic heathland which is bejeweled in summer by the transient flowers of spotted rock-rose *(Tuberaria guttata)*, found in Britain just here and on the Llŷn peninsula. The limestone cliffs of Gower, on the other hand, are the only British home of yellow whitlow-grass *(Draba aizoides)*, which is now Glamorgan's County Flower. Finally, Denbighshire boasts one of only two colonies of limestone woundwort *(Stachys alpina)* in Britain, the new emblem of the county.

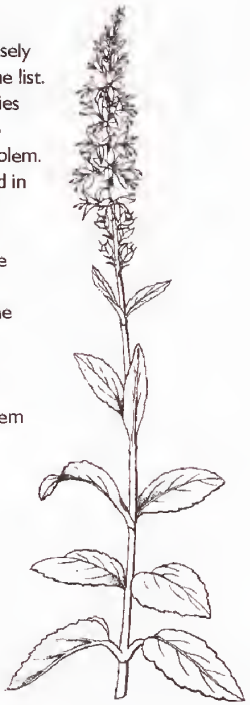
Many of these are well known rarities. Perhaps more interesting is the emergence of scarce and declining species as County Flowers. Lowland bogs are exceptionally rare habitats, with a loss of 96% over the last 50 years in Britain as a whole. Ceredigion is home to some of the best remaining examples, so it's fitting that a special and often overlooked plant of this habitat, bog rosemary *(Andromed polifolia)*, has been voted as its County Flower. Similarly, whorled caraway *(Carum verticillatum)* typifies the declining Rhos pastures of south and west Wales and is nowhere more abundant than in Carmarthenshire, where it transforms wet meadows into white froth in summer. Although Welsh poppy *(Meconopsis cambrica)* is familiar to many as a garden plant which is increasing as an alien in the wild, many don't realize that it is

actually native to Wales and that these populations, found on rocky riversides and in damp mountain gullies, are in decline. Merioneth, whose County Flower this is, now has the chance to publicise the threats facing their poppies. Spiked speedwell *(Veronica spicata)* is another attractive plant widely grown in gardens. Again, few members of the public will be aware that this species inhabits a few lime-rich rock outcrops across Wales, notably on Craig Breidden in Montgomeryshire. In all these cases, this is a great opportunity to highlight the plight of these plants and encourage people to take more of an interest in the plants around them.

The launch of County Flowers produced a flurry of publicity, with radio and television interviews across Wales, as well as articles in local and national newspapers. We hope, however, that this is just the start and that people will actively endorse and use their County Flowers in a range of interesting and imaginative ways. The possibilities are endless. How about Royal Mail stamps, postcards or t-shirts depicting each county's emblem, guided walks to show residents their County Flower, annual surveys of the rarer County Flowers, adoption by Councils and local biodiversity groups of their emblems, a display of County Flowers at the National Botanic Garden at Middleton or encouraging school children to grow cuckooflowers, foxgloves or Welsh poppies? These and similar initiatives could provide excellent ways for people to become re-connected to the plants that surround them.



You may notice that one plant closely associated with Wales is not on the list. During voting, three Welsh counties and Cardiff were all competing to have the wild daffodil as their emblem. Cardiff was always well in the lead in terms of votes, but it was then pointed out that wild daffodil has never actually occurred as a native plant within the city's boundary. Local botanists, wildlife groups, the county agency and the local biodiversity organisation all signed a petition to vote for wild leek *(Allium ampeloprasum)* as an emblem for Cardiff instead.



As a less well known, rare and threatened plant, this choice was perfect for the aims of County Flowers, and it does at least grow within the boundary, albeit offshore on the island of Flat Holm. It was therefore decided to accept the wild leek as the emblem for Cardiff and leave the wild daffodil as a national symbol of Wales, not associated with any one county but to be celebrated by everyone in Wales.

This is the final theme of County Flowers: a pure celebration of the plants that are found wild in our countryside. We should all take delight in their diversity, their ability to lend character and a sense of place to an area, and the personal and emotion connections we make with them. We should also cherish them and do all that we can to protect them.

Trevor Dines is Swyddog Plantlife Cymru/Plantlife Wales Officer.

Dr. W. Eifion Jones 1925-2004

It is with great sadness, but also with sense of celebration for a full life well lived, that we record the death of Dr Eifion Jones, President of the North Wales Wildlife Trust (NWWT) and of the Bardsey Bird and Field Observatory. A full obituary by Jane Cherrett will appear in the NWWT magazine *Natur*.

Eifion gave his energy and enthusiasm to many causes, but none were closer to his heart than nature conservation and the Wildlife Trusts. He leaves a considerable legacy, not least in the regard and affection with which he is remembered. He worked hard for the realisation of a single, Wales-wide Wildlife Trust, and would be pleased if this support were to bear fruit.

Er ein bod yn dathlu bywyd a gafodd ei fyw i'r eithaf, â chalon brudd yr ydym yn cyhoeddi marwolaeth Dr Eifion Jones, Llywydd Ymddiriedolaeth Bywyd Gwyllt Gogledd Cymru a Thŷ Adar Ynys Enlli. Fe fydd ysgrif goffa lawn gan Jane Cherrett i'w chael yng nghylchgrawn yr Ymddiriedolaeth, sef *Natur*.

Fe ymlafniodd Eifion yn llawn egni a brwdfrydedd â nifer o achosion, ond nid oedd yr un achos yn nes at ei galon na gwarchod natur a'r Ymddiriedolaethau Bywyd Gwyllt. Mae'n gadael cryn etifeddiaeth ar ei ôl, yn arbennig o ran y ffordd llawn parch a hoffter yr erys yng nghof y rhai oedd yn ei adnabod. Fe weithiodd â'i ddeg ewin i gael un ymddiriedolaeth bywyd gwyllt i Gymru gyfan, ac fe fyddai'n falch iawn pe bai'r gefnogaeth yma'n dwyn ffrwyth.

Hysbysfwrdd / NoticeBoard

If you would like your wildlife event to feature on this page please contact Mandy Marsh on 01248 385574 or e-mail m.marsh@ccw.gov.uk

The ROYAL WELSH CENTENARY SHOW
19-22 July Builth Wells
Tel: **01982 553683**
Fax: **01982 553563** for details

OTHER SHOWS
3 July N Wales Show, Caernarfon
10-11 Aug Anglesey Show, **01407 720072**
info@angleseyshow.org.uk
19 Aug Flint & Denbigh, Denbigh
26 Aug Meirionydd, near Bala
29-30 Aug North Wales Garden Festival, Bodelwyddan
4 Sept Sioe Cerrig, Cerrigydrudion
19 Sept Flintshire Green Fair, Northop

EISTEDDFOD GENEDLAETHOL/ NATIONAL EISTEDDFOD
2004 Cosnewydd/Newport 2004
31 Gorff-7 Awst/31 July-7 Aug
Pencadlys/Headquarters:
Ffôn/Tel: **029 2076 3777**
Ffacs/Fax: **029 2076 3737**
ebost/email: info@eisteddfod.org.uk

Shared Earth Trust at Denmark Farm
4 July OPEN DAY
Guided Nature Walks for all ages:
14 Aug *Discovering Ponds*
11 Sep *Discovering Woodlands*
Ongoing: *For a full programme of courses & workshops please contact the Trust direct.*
Tel: **01570 493358**
e-mail set@denmark-farm.freeserve.co.uk
or www.shared-earth-trust.org.uk

The Mammal Society
MAMMAL IDENTIFICATION
27-29 Aug Pembrokeshire
SURVEYING WHALES AND DOLPHINS Cardigan Bay
17-18 July, 14-15 August
4-7 Sept (Extended course)
Tel: **020 7350 2200** or e-mail
training@mammal.org.uk
Web: www.mammal.org.uk

Butterfly Guardian
TRAINING WORKSHOPS
are free but booking is essential.
Contact: Kelly Thomas **08707 706153**
k.thomas.bcw@btconnect.com
www.butterfly-conservation.org
7 July *Introduction to Butterfly Recording & Identification* Knighton
6 Aug *Introduction to Moth Recording & Identification* 7pm-11pm, Knighton
30 Oct *Leaf Miner Recording & Identification for Beginners*
Wentwood Forest & Penhow Village Hall, Gwent.

Plas Tan y Bwlch,
Parc Cenedlaethol Eryri/
Snowdonia National Park,
Maentwrog, Gwynedd
www.plastanybwlch.com
Gorff 12-16 Jul *Dasbarthiad Llystyfiant Cenedlaethol Uwch:ei berthynas a mopio safleoedd, monitor o gwerthuso.* Advanced NVC Vegetation Classification: its relationship to site mapping, monitoring and evaluation.
Awst 9-13 Aug *Rheoli Cynefin Corstiroedd*/Wetland Habitat Management
Ffon/Tel: **0871 871 4004**
Gofyn am/Ask for Wendy Evans
wendy.evans@eryri-npa.gov.uk

TEACHERS
Are you interested in Sustainable Development and Global Citizenship?
YOUR WORLD YOUR CHOICE/ *EICH BYD EICH DEWIS* is a new bilingual Key Stage 3 CD rom.
Five copies of this resource will be distributed to all secondary schools in Wales, supported by INSET sessions in some LEAs. Further copies can be obtained from:
The West Wales Eco Centre,
Lower St Mary Street, Newport, Pembs.
SA42 0TS Tel: **01239 820235**

WALES FOOTPRINT PROJECT
"If everyone lived like the average Welsh person, we would need nearly 3 planets to support us…"
Find out how much of an impact you are having on the planet: see the new website www.walesfootprint.org or www.oltroedcymru.org

Gwent Levels Wetlands Reserve
GUIDED WALKS AND EVENTS
4 July Come to Uskmouth to see small mammals that have been live-trapped as well as looking for signs of larger mammals.
18 July Open Day
28 July Bat Watch
4 Aug Spiders & Other Mini-beasts
15 Aug Dragonflies, Butterflies & Day-flying Moths
31 Aug Waders at High Tide,
4 Sept Birds & Migration
25 Sept Birds & Migration,
For more information about these events please contact **01633 275 567**

The National Trust
HANDS-ON BAT COURSE
1-4 July Residential course in Snowdonia. Price £300 to include all lectures, fieldwork, accommodation and food.
Contact **01492 860123** or
john.anderson@nationaltrust.org.uk

RHODODENDRON MEGA-BASH
24-26 Sept Massive fires guaranteed. Camping at the foot of Snowdon £19 including food and entertainment. Bring a tent. Over 18s only.
Tel: **01766 890659** or email:
clive.price@nationaltrust.org.uk.

WILDLIFE TRUST EVENTS Contact your local Wildlife Trust for a full list of events this summer.

YHA and ADOPT A BEACH
Come and help the YHA clean and survey their local beaches
4 Jul Port Eynon
18 Jul Poppit Sands
1 Aug Borth
15 Aug Manorbier
29 Aug Broad Haven
5 Sept St David's
18/9 Sept All of these!
Leisa Forrest 01792 310040
leisaforrest@yha.org.uk
www.adoptabeach.org.uk

For illustrations, thanks to/diolch am y lluniau i: English Nature, Mandy Marsh, Tom McOwat, Alastair Robertson, Alan Wagstaff

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Lesser bladderwort,
Utricalaria Minor
Photo/ffoto: Peter Boardman

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